

JOURNAL OF INTERNATIONAL CRISIS AND RISK COMMUNICATION RESEARCH

Volume 2, Issue 2 · 2019

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Published by the Nicholson School of Communication and
Media at the University of Central Florida in association with the
International Crisis and Risk Communication Conference

The *Journal of International Crisis and Risk Communication Research* (JICRCR) is a biannual peer-reviewed, open access publication of the Nicholson School of Communication and Media at the University of Central Florida and is an extension of the International Crisis and Risk Communication Conference (ICRCC).

The *Journal of International Crisis and Risk Communication Research* (Print: ISSN 2576-0017) is published once a year in print and biannually online in March and October (Online: ISSN 2576-0025). The print volume contains both issues from the calendar year. Institutional, organizational, and individual subscribers are invited to subscribe to the print edition using the following mailing address:

Journal of International Crisis and Risk Communication Research (JICRCR)
Nicholson School of Communication and Media
University of Central Florida
12405 Aquarius Agora Dr.
Orlando, FL 32816-1344, USA

Print subscription rates in the United States:

Individuals: 1 year (2 issues in one volume), \$40

Libraries and organizations: 1 year (2 issues in one volume), \$75

Checks should be made payable to the University of Central Florida. If subscribing outside of the United States, please contact the Editor-in-Chief for the current rate.

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Crisis Frame Dynamics: Frame Diversity in News Media and the Role of Governmental Actors

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ABSTRACT

This study aims to understand the dynamic evolvement of frames in news media coverage of the Ebola crisis (2014–2015) and their interplay with narratives put forth in press releases from governmental organizations (GOs). An automated content analysis was applied to U.S. newspapers and GOs' press releases on the Ebola epidemic. Time series analyses illustrate how the scope of frames in news media becomes narrower (decreased diversity) with the presence of immediate and problem-focused crisis frames and wider (increased diversity) with more progressive frames. Additionally, the results imply that a level of shared interpretation (frame alignment) between media and GOs fosters the openness of news media for a variety of frames, which in turn might lead to a communicative shift that eases the crisis atmosphere.

KEYWORDS: Crisis communication; framing; news frame diversity; frame alignment; automated content analysis

On March 23, 2014, the World Health Organization (WHO, 2015) reported on the first cases of Ebola in West Africa. The emergence and spread of such infectious diseases are characterized by a complex of social, technological, and environmental dynamics that give rise to multiple narratives (Leach, Scoones, & Stirling, 2010). Involved actors (e.g., news media and governmental organizations [GOs]) socially co-construct and develop the meaning of these events in their communication (e.g., Schultz & Raupp, 2010). Their framing of public health crises suggests and promotes certain strategies and interventions that ultimately influence outbreak responses (Leach et al., 2010). This study

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aims to understand the dynamic evolvement of frames in news media coverage of the Ebola crisis (2014–2015) and their communicative interplay with narratives put forth in GOs' press releases.

During crises, news media serve as the primary channel for crisis communication (Centers for Disease Control and Prevention, 2014; Glik, 2007) and make crucial information available (Sorribes & Rovira, 2011). In their role as a central realm for negotiating crisis understanding, news media are considered to play a leading role in the construction and evolvement of a crisis (Kleinnijenhuis, Schultz, & Oegema, 2015; Van der Meer, 2016b). They selectively emphasize a specific series of unfolding events and offer interpretations to the public of how to make sense of the situation at play (Van Gorp, 2007). At the same time, GOs, as public service organizations, have the social function to notify other actors about crisis developments and are an important source of information (Liu & Horsley, 2007). During such uncertain times, these organizations also need to come to an understanding of the quickly unfolding events, which they then react to and communicate about, thereby contributing to the construction of the crisis (Schultz & Raupp, 2010).

Framing theory offers a powerful body of literature to study over-time patterns of narratives during crisis episodes (Geiß, Weber, & Quiring, 2016; Kleinnijenhuis et al., 2015; Snow, Vliegenthart, & Corrigan-Brown, 2007) and is a useful theoretical lens to understand health crises such as viral epidemics (e.g., Dudo, Dahlstrom, & Brossard, 2007; Lee & Basnyat, 2013; Luther & Zhou, 2005). Prior research has suggested that the concept of *news frame diversity* can provide important insights into the dynamic crisis coverage by news media (e.g., Geiß et al., 2016), and the concept of *frame alignment* allows the study of the interplay of news media frames with frames promoted by GOs (e.g., Van der Meer, Verhoeven, Beentjes, & Vliegenthart, 2014). Hence analyzing the over-time development of *news frame diversity* and *frame alignment* promises novel insights into the complex crisis frame dynamics in news media and the communicative role of GOs. First, through the concept of *news frame diversity*, the variety of ways in which an event is framed in news media can be studied (Geiß et al., 2016; Huang, 2010). Previous studies have demonstrated that news media have a limited carrying capacity

(Zhu, 1992; Zhu & McCombs, 1995) and that specific interpretations of important events are able to temporarily displace other alternative views around the issue (Geiß et al., 2016). During epidemic outbreaks, these dominant interpretations can obscure alternative narratives that put forth, for example, different causes or solutions to the crisis (Leach et al., 2010). Therewith, a drop in diversity (i.e., the predominance of a few major problems or a single issue or interpretation) might have real consequences for the range of crisis responses that are implemented. Investigating what types of interpretations can cause the news media to narrow (or widen) their scope of frames can help understand what drives the uniformity (or plurality) of presented viewpoints in news media coverage during crises.

Second, the concept of *frame alignment* is useful to explore the communicative interplay between actors, such as news media and GOs, by means of frame comparison (Snow, Rochford, Worden, & Benford, 1986). The alignment of frames can be considered to indicate an increase in mutual understanding of a crisis that helps to ease the crisis atmosphere (e.g., Van der Meer et al., 2014). Hence, in crisis situations, it might be especially important how actors collectively define, understand, and frame the crisis (Schultz & Raupp, 2010; Weick, 1988). To date, however, research has not investigated how the framing of public health crises in the news media relates to news media's communicative interaction with GOs. It remains unclear whether a degree of openness for alternative views on a particular issue in news media (*news frame diversity*) results in shared interpretations across actors (*frame alignment*) or if a level of shared interpretations motivates news media to open up for varying views. Thus more advanced over-time analyses are needed to understand the causal link between news frame diversity and frame alignment.

To shed light on the dynamic evolvement of frames in news media coverage of crises and their interplay with narratives put forth in press releases from GOs, the following research question is addressed: How does the frame diversity in news media coverage in times of crisis relate to the presence of individual news frames and alignment with frames offered by GOs? To answer the question, this study relies on automated content analysis of a long-standing crisis (the Ebola crisis), studying

the framing dynamics between U.S. news media and GOs throughout 54 weeks of the crisis.

Theoretical Framework

Framing

Framing theory offers a useful theoretical lens to investigate the dynamic process of meaning construction and negotiation (Gamson & Modigliani, 1989). In current research, Entman's (1993) definition of framing has established itself as a common reference:

To frame is to select some aspects of a perceived reality and make them more salient in the communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described. (p. 52)

The idea of selection and salience implies that framing can increase attention to specific aspects of an issue and minimize attention to others (Cappella & Jamieson, 1997). By bringing certain aspects to attention (De Vreese, 2005), frames help individuals to organize a series of events, ascribe meaning to them, and guide action (Benford & Snow, 2000).

A substantial number of studies have utilized framing to study health-related issues, such as obesity (e.g., Hawkins & Linvill, 2010), breast cancer (e.g., Andsager & Powers, 1999), and tobacco control (e.g., Niederdeppe, Farrelly, Thomas, Wenter, & Weitzenkamp, 2007). Yet, framing in severe health crises is much more dynamic given the dramatic nature of the events (Lee & Basnyat, 2013). Therefore a subset of research has focused more directly on frames in news coverage of infectious diseases (e.g., Dudo et al., 2007; Luther & Zhou, 2005; Shih, Wijaya, & Brossard, 2008; Tian & Stewart, 2005) and compared these to frames in GOs' press releases (e.g., Lee & Basnyat, 2013; Rossmann, Meyer, & Schulz, 2018). Combined, the predominance of framing theory in studies of news media coverage and effects in the health literature demonstrates the value of this theoretical lens for examining news media coverage during the Ebola crisis. However, the majority of these studies have applied a deductive approach to classify frames (i.e., relied

on predefined frames) with few exceptions (e.g., Tian & Stewart, 2005). In contrast to this body of research, the present study identifies frames inductively, which results in more issue-specific frames that are directly related to the Ebola crisis.

News media's crisis framing. In general, news media are an important source for health information (Andsager & Powers, 1999; Viswanath & Emmons, 2006), and even more so during crisis and risk situations (Thomas, Friedman, Brandt, Spencer, & Tanner, 2016). News media can shape public opinion by calling attention to certain issues (McCombs & Shaw, 1972), offering interpretations of events (Van Gorp, 2007), and advising protective action (Liu, Fraustino, & Jin, 2015). Often, the public's meaning construction and actions are based on information provided by news media (Sorribes & Rovira, 2011). News media make sense of incidences and organize them into a meaningful succession, thereby influencing the construction of reality (Hallahan, 1999).

The influence of media frames on the public might be particularly pronounced during epidemics because the public has no direct experience with the pressing topic (Ball-Rokeach & de Fleur, 1976; Shih et al., 2008). Depending on the salience of an epidemic on the media's agenda, coverage can heighten or reduce the public's risk perception (Dudo et al., 2007; Kilgo, Yoo, & Johnson, 2018). Applying Iyengar's (1991) classification of generic frames into episodic (i.e., single, specific event-driven cases) and thematic frames (i.e., placing events into an overriding issue), Dudo et al. (2007) found that U.S. news coverage of the avian flu was dominantly episodic. Because episodic frames present specific event-focused cases and focus on emotions and sensationalism (De Vreese, Peter, & Semetko, 2001), this kind of frame might hinder informed judgment about risks associated with the crisis (Dudo et al., 2007). Thus news media, in their coverage and framing, can spark or prevent crisis escalation and ultimately impact the crisis involvement (Schultz, Kleinnijenhuis, Oegema, Utz, & van Atteveldt, 2012).

GOs' crisis framing. GOs are another key actor in times of crisis. As public organizations, they are a key holder of information and have the social function to communicate quickly as an objective and trustworthy source to protect the public (Liu & Horsley, 2007). Press releases serve as a vehicle for health organizations to inform the public through the

media (Rossmann et al., 2018). Their communication aims to notify the public about the actions the public should take, for example, to avoid physical harm (Coombs, 2007). Furthermore, to reduce psychological stress among the public, GOs are expected to disclose actions that are implemented to solve the problem and prevent similar occurrences in the future (e.g., Kim & Liu, 2012).

Crisis framing across actors. Frames assist actors to communicate via various platforms and come to a (shared) understanding of a crisis (Schultz & Raupp, 2010; Weick, 1988) and ultimately decrease uncertainty (Leydesdorff & Ivanova, 2014). These frames can differ between actors per crisis phase (Van der Meer et al., 2014) because crisis actors provide competing interpretations (Seeger, 2002). While news media frequently use frames offered by sources such as GOs, they might also adapt these frames (Lee & Basnyat, 2013; Vasterman & Ruigrok, 2013). Hence frames are the result of communicative negotiation processes over meaning between the media and their sources (Vliegthart & van Zoonen, 2011). Studying frames of news media and GOs thus promises useful insight into how central actors made sense of the Ebola crisis and how meaning construction evolved as the epidemic unfolded.

Yet, research into framing across news media and GOs has been limited, with few exceptions (e.g., Lee & Basnyat, 2013; Rossmann et al., 2018; Vasterman & Ruigrok, 2013). Rossmann et al. (2018) found that European news coverage during the H1N1 epidemic more frequently emphasized risks, while press releases by GOs framed the crisis more dominantly in risk-attenuating terms. In contrast, Vasterman and Ruigrok (2013) found that while Dutch news media coverage during the H1N1 crisis frequently featured alarming frames, the coverage was not more alarming than its news sources. In addition, Lee and Basnyat (2013) traced press release of GOs in Singapore to news stories of the H1N1 crisis, showing that journalists very selectively use provided information and change the frames they use in coverage.

To reach a closer understanding of how news media covered the Ebola crisis and how GOs communicated about the epidemic, it is important to analyze the frames that both actors constructed. Therefore the first research question asks the following:

RQ1: What frames are constructed by news media and GOs during the Ebola crisis?

News Frame Diversity

Research into communicative diversity in terms of actors, issues, and frames in communication has its origins in agenda-setting research (e.g., Jennings, Bevan, & John, 2011; Zhu, 1992). The concept of news frame diversity focuses on the heterogeneity of news media framing and can be conceptualized as the semantic variety of frames present in a text (Huang, 2010). Variety of frame presence in news media coverage can be considered along a continuum from the dominance of a single frame (i.e., low news frame diversity) to complete heterogeneity of frames (i.e., high news frame diversity; Entman, 2003). Because the framing environment is contested with differently strong frames competing in news coverage for dominance (Chong & Druckman, 2007), news frame diversity closely relates to the idea of a zero-sum dynamic in news media, where a rise in salience of one aspect or interpretation of a subject comes at the cost of the salience of another (Zhu, 1992; Zhu & McCombs, 1995).

Previous research has indicated that news frame diversity can provide important insights into the dynamic crisis coverage by news media (e.g., Geiß et al., 2016) and that the limited presence of alternative information can have consequences for crisis development (e.g., Kleinnijenhuis et al., 2015; Suedfeld & Tetlock, 1977) and solutions (Leach et al., 2010). When major events take place, minor items are pushed from the news media agenda by breaking news (Berkowitz, 1992). For instance, news broadcasts may devote the majority of their time to a segment about the Ebola outbreak. The audience can infer from this predominance of a single issue that a new crisis occurred (Kleinnijenhuis et al., 2015). In a similar vein, dramatic events during crises, such as the diagnosis of Ebola on U.S. soil, can lead to a temporary rise of only a few frames focusing on key elements of the issue (Scheufele, 2006). The resulting drop in diversity (i.e., the predominance of a single issue or interpretation) thus suggests a focus on a few major problems

(rather than a variety of minor issues), which signals an increase in crisis intensity (Kleinnijenhuis et al., 2015).

More fundamentally, the narrow focus on problems can have real consequences for crisis outcomes. Often, policy decisions and interventions during epidemics are based on a narrow subset of potential courses of actions because actors and institutions “close down” around a limited number of narratives (Stirling, 2008). However, as long as a narrow focus on a few interpretations persists, “a trade-off with the issues of other stakeholders is more unlikely” (Kleinnijenhuis et al., 2015, p. 4) and thus alternative solutions remain absent. Particularly, health crises such as Ebola may require a greater openness to alternative narratives that “highlight issues, understandings and forms of knowledge which are vital to ensure that outbreak responses are attuned to local ecological and social circumstances, and so actually work” (Leach et al., 2010, p. 375). Therefore, to respond appropriately to epidemics, it might be detrimental for news media to fail to move beyond a singular narrative and embrace alternative viewpoints (Leach et al., 2010; Stirling, 2008).

Despite this evidence, little research has investigated what communication patterns result in a drop or rise in news frame diversity. Research by Geiß et al. (2016) provided evidence about the successfulness of frames that were promoted by influential actors to temporarily displace alternative frames around important events. Focusing on the health context, the present study investigates what interpretations cause news media to narrow or widen their scope of frames during crises. The second research question, therefore, asks the following:

RQ2: What type of crisis frames are associated with a rise or drop in frame diversity in news media coverage?

Frame Alignment

Besides the variety of frames in news media, the similarity of frames between actors can offer further understanding of the communicative crisis process. During crises, actors desire to resolve differences and come to a collective understanding of ambiguous and confusing events (Snow et al., 1986; Van der Meer et al., 2014). After individual meaning production, actors engage in collective sense making, which

is likely to result in a temporal construction of similar frames (Van der Meer et al., 2014). This similarity in frame construction can be understood as frame alignment. Therefore, in this article, frame alignment is conceptualized as the similarity in presence of comparable frames in actors' communication about a certain event. Previous studies have already provided qualitative (Snow et al., 1986) and quantitative (Van der Meer et al., 2014) evidence for different degrees of frame alignment throughout crises.

The level of alignment can also have substantial consequences for crisis development. As long as confusion and incoherence are the prevailing states of crisis, a solution to the crisis is improbable (Weick, 1988). Before a crisis can be solved, actors need to reach a degree of consensus about what happened and what the complex events mean (Van der Meer et al., 2014). As interpretations of events become more similar, resulting in frame alignment, actors can reach a shared understanding (Snow et al., 1986) to avoid further escalation (Weick, 1988), creating a precondition for crisis resolution.

Frame Alignment and News Frame Diversity

Prior literature indicates that both shared interpretations between actors (frame alignment; Snow et al., 1986; Van der Meer et al., 2014; Weick, 1988) and a diverse set of presented viewpoints in news media (high news frame diversity; e.g., Huang, 2010; Kleinnijenhuis et al., 2015; Wong, Ormiston, & Tetlock, 2011) are important preconditions for relaxing the crisis atmosphere. However, it remains unclear whether a plurality of perspectives in news media (high news frame diversity) results in shared interpretations across actors (frame alignment) or if a level of shared interpretations motivates news media to open up for varying views.

On one hand, it is plausible that the media debate first needs to open up to a broader set of perspectives (frame diversity) before they can reach a level of shared interpretation of events with GOs (frame alignment). As the crisis develops, news media coverage might move away from the few dramatic interpretations of the events and turn toward a greater variety of explanations. With the increasing diversity, an increase in perspectives is stimulated and openness for new

information motivated (Wong et al., 2011). The necessary “space” in the news media debate might be created for GOs’ frames to become salient. The openness, in turn, might motivate actors to interact (Kleinnijenhuis et al., 2015), which might stimulate a shared understanding of what the events signify and result in a rapprochement of actors’ frames (Van der Meer et al., 2014).

On the other hand, shared interpretation among GOs and news media (frame alignment) might be a precondition for media to move away from homogeneous framing and a crisis atmosphere to open up for multiple interpretations and viewpoints (frame diversity). Frame alignment with GOs might have a calming impact on the news media coverage and scope of frames, thereby increasing frame diversity. In the midst of a crisis, media are often focused on the dramatic nature of the events (Reintjes et al., 2016) and thus might initially neglect the information and interpretations offered by the GOs. However, once news media open up to these interpretations and reach a level of mutual understanding, there may be a calming impact on news media coverage, allowing a shift of attention to alternative interpretations. Thus, with the widening of opinions away from the narrow set of problems, possible solutions can be discussed and the crisis atmosphere eases (Kleinnijenhuis et al., 2015). To disentangle this complex communicative process, the third research question is formulated as follows:

RQ3: How does frame diversity in news media in times of crisis relate to the alignment with frames offered by the GOs?

Method

Data Collection

To answer the research questions, an automated content analysis of U.S. newspaper coverage and GOs’ press releases was conducted. The Ebola crisis was selected as a case because the epidemic provides a unique opportunity to study the dynamic crisis coverage of news media and examine how news reporting affects (or is affected by) interaction with GOs. The crisis began in March 2014 when the first cases were reported in Guinea (WHO, 2015). While the majority of cases were

reported in West Africa, attention in the United States was especially high when four people were diagnosed with the virus in the United States in September and October 2014. Given the significance and the scale of the outbreak, the crisis offers an interesting context to answer this study's research questions.

Newspaper articles and press releases were collected between June 29, 2014, when attention started to increase in U.S. news media, and July 5, 2015, when attention faded away, indicated by a decreasing number of articles about the epidemic. Five U.S. newspapers with complete articles on LexisNexis were selected (the *New York Times*, *Washington Post*, *USA Today*, *Daily News* [New York], and *New York Post*). Relevant articles were selected by applying a search string containing the words "Ebola," "EVD" (for Ebola virus disease), or "EHD" (for Ebola hemorrhagic disease). This resulted in a total sample of 1,079 newspaper articles. In total, four GOs were selected (the United Nations, WHO, World Bank, and Centers for Disease Control and Prevention). Their websites were searched for press releases about the outbreak, resulting in a total sample of 324 press releases.

Operationalization

Frames. This study applies an inductive method to automatically identify frames in actors' crisis communication. More specifically, a semantic network analysis was conducted, identifying latent patterns in text based on word (co-)occurrences (Hellsten, Dawson, & Leydesdorff, 2010). This automated approach draws on the idea that a text can be seen as a network of words that conveys their meaning, with each network serving as an indicator for the frame they represent. By clustering groups of correlating words, a higher order structure in text and between text can be identified and frames detected (Hellsten et al., 2010). In other words, analyzing the (co-)occurrence of words allows one to quantify meaning in measurable units of analysis, thereby avoiding subjective bias. Research has already successfully applied this method, for instance, to compare discourses (Leydesdorff, 2005) or to explore crisis frames (Gerken, Van der Land, & Van der Meer, 2016; Van der Meer, 2014; Van der Meer et al., 2014). Thus frames in this research will be operationalized as (co-)occurrences in communication, which

generate latent semantic networks that convey their meaning (adapted from Hellsten et al., 2010).

The main premise of such automated approaches is that documents can be considered as a *bag of words* where a set of words is sufficient to understand the meaning of a text (e.g., Grimmer & Stewart, 2013). This idea is in line with the underlying theoretical assumptions of framing theory that “text contains frames, which are manifested by the presence or absence of certain keywords, stock phrases, stereotyped images, sources of information, and sentences” (Entman, 1993, p. 52; for a more detailed description of why frames can be analyzed in this way, see Grimmer & Stewart, 2013; Hellsten et al., 2010; Van der Meer, 2016a).

The automated approach requires several practical steps (Vlieger & Leydesdorff, 2011). In this study, frames were identified in all actors’ documents combined. First, a frequency list containing the 255 most frequently used words was created. Common/meaningless words, organizational names, and search strings were removed with a stop-word list, and words were reduced to their base forms. Second, after a manual revision, a document–term occurrence matrix was conducted. Third, the matrix was used to conduct principal component factor analysis. To maximize the variable loadings on each factor, Varimax rotation was selected. The retrieved components represent the frames. Through an iterative process, 11 meaningful frames were inductively identified. Finally, labels were assigned to the frames according to the words that are part of the word clusters that make up the frame.

Frame diversity. Research into communicative diversity (e.g., agenda diversity and frame diversity) relates to the idea that a difference in presence can be observed for a defined number of categories (e.g., Kleinnijenhuis et al., 2015). In this study, frame presence was measured in the frequency of occurrence of each frame, in terms of articles that contained a particular frame.

To analyze the frequency of occurrence in U.S. news media, AmCat (the Amsterdam Content Analysis Toolkit; cf. van Atteveldt, 2008) was utilized. First, for each frame, a search string was created, combining the words that are part of the word clusters (or frame) in Apache Lucene query language with Boolean operators (AND, OR) and wildcards (*, ?). Words with factor loadings above .50 were combined with the operator

AND, and words relating to the same concept (e.g., traveler, passenger) combined with OR. The search queries were developed, tested, and improved using samples from the population to ensure the validity of the search strings. Second, all news documents were searched for the presence of these frames in AmCat. The tool kit construed a data matrix with rows representing the time (weekly level) and columns representing frame presence, indicating the variety of frames present in a given week. Third, to calculate frame presence and their prominence in relation to one another, the Shannon and Weaver (1949) entropy measure was used. This is a widely used measure for agenda and frame diversity (e.g., Huang, 2010; Jennings et al., 2011; Kleinnijenhuis et al., 2015; Zhu & McCombs, 1995).

Frame alignment. The concept of frame alignment relates to the idea that different actors construct and use frames that differ in their level of similarity at certain points in time (Van der Meer et al., 2014). This study sets out to measure this similarity in framing by comparing frame presence across actors over time. In other words, by measuring the occurrence of a discrete number of frames for each actor in each defined time period, the presence of frames can be compared across actors.

This analysis is divided into several steps. First, the search strings that were described in the previous section were used to construe a data matrix in AmCat for each actor, with rows representing the time and columns indicating the frame presence. Second, a new data set was created from these matrices, where the cases represent the frames and a variable each actor for every week. The cases could take values of zero or any positive integer, with greater numbers representing a greater frame presence. Third, the extent to which a frame was present in the communication of both actors was tested by means of Pearson's *r* correlations tests, week by week. The correlation scores provided insight into the level of alignment over time.

Analysis

Partial adjustment autoregressive distribution lag (ADL) model. To test the influence of frames on frame diversity in news media (RQ2), a partial adjusted ADL (Koyck) model was estimated (data were

aggregated on a weekly level) with frame diversity as the dependent variable and news frames and attention as independent variables. Augmented Dickey–Fuller test for unit root (stationarity) was conducted, and the series was tested for absence of autocorrelation in residuals (i.e., white noise).

Vector autoregression (VAR). Following previous research (e.g., Kleinnijenhuis et al., 2015), a VAR model was estimated to test the causal RQ3. The analysis tests for bidirectional causality in time series data (aggregated on a weekly level) and consists of a series of ordinary least squares regressions in which each variable is treated as both dependent and independent variable (Vliegthart, 2014). The model is based on Granger causality, where external causes should only be assumed when the own autoregressive past is not sufficient to explain a current value (Brandt & Williams, 2007). In this model estimation, each value is regressed on its past value and the past value of the endogenous variable as well as the cross-lagged influence of other variables. The variable x is assumed to Granger-cause variable y if the prediction of y based on its previous values is improved by including the previous values of x into the equation (Brandt & Williams, 2007). Thus this analysis does not test for actual causation but whether the time series of x has predictive information about the time series of y .

News frame diversity and frame alignment served as endogenous variables, with news attention (i.e., number of news articles) as an exogenous variable to control for. The logarithm of the variable news frame diversity was entered into the model to account for nonnormal distributions. Dickey–Fuller tests were conducted to test for stationarity. The maximum number of lags was limited to three, with the assumption that a direct impact would only occur within 3 weeks or less (Vliegthart, 2014). The final lag length included in the model was determined by the Akaike information criterion (e.g., Vliegthart, 2014). Tests for the absence of autocorrelation (in residuals) were conducted.

TABLE 1 *Identified Frames in News Media and GOs' Communication*

Frame	Example indicators	Occurrence ^a		
		News	GOs	Total
Support, $R^2 = 8.39$	support, countries, community	71 (6.58%)	165 (50.93%)	236 (16.82%)
Victim, $R^2 = 4.95$	family, sick, Liberia	58 (5.38%)	2 (0.62%)	60 (4.28%)
Protection, $R^2 = 2.92$	protect, training, worker	136 (12.6%)	12 (3.7%)	148 (10.55%)
Intensification, $R^2 = 2.39$	Texas, Duncan, hospital	175 (16.22%)	0 (0%)	175 (12.47%)
Outbreak, $R^2 = 2.14$	Leone, border, capital	164 (15.2%)	35 (10.8%)	199 (14.18%)
Contagion, $R^2 = 1.84$	disease, spread, infected	430 (39.85%)	101 (31.17%)	531 (37.85%)
Local infections, $R^2 = 1.62$	Spencer, Bellevue, quarantine	38 (3.52%)	0 (0%)	38 (2.71%)
Politics, $R^2 = 1.55$	Obama, president, house	89 (8.25%)	2 (0.62%)	91 (6.49%)
Prevention, $R^2 = 1.4$	screening, airport, temperature	21 (1.95%)	1 (0.31%)	22 (1.57%)
Research, $R^2 = 1.32$	vaccine, trial, research	39 (3.61%)	4 (1.23%)	43 (3.06%)
Consequences, $R^2 = 1.31$	economic, million, impact	15 (1.39%)	57 (17.59%)	72 (5.13%)

Note. GO = governmental organization.

^aCells contain the number of documents with identified frames. Percentages in parentheses are calculated based on frame presence relative to overall number of identified documents per actor to enable comparison.

Results

Frames in Communication (RQ1)

A semantic network analysis was conducted that investigated the frames that were constructed by both actors. In total, 11 frames were identified and labeled, and their presence in communication was analyzed to answer RQ1. Table 1 displays the frame presence in communication from news media and GOs. In terms of frame presence, the results reveal that news media dominantly focused on the spreading virus and its related risks (contagion frame: 39.85%). To put it differently, the contagion frame is present in 39.85% of the newspaper articles sampled. In addition, frames about the pandemic outbreak in Africa (outbreak frame: 15.2%), the first U.S. case that intensified the crisis (intensification frame: 16.22%), and the measures that need to be taken to protect patients and health personnel (protection frame: 12.6%) were high on the news media agenda. In contrast, GOs heavily emphasized the need for international support (support frame: 50.93%).

Moreover, GOs strongly focused on the development of the virus and its risk (contagion frame: 31.17%), the economic consequences of the crisis (consequence frame: 17.59%), and the pandemic outbreak center in Africa (outbreak frame: 10.8%). In sum, it becomes evident that while some frames are only (or more strongly) emphasized by the individual actors, others were high on both agendas (e.g., outbreak frame, contagion frame).

Frames and News Frame Diversity: Partial Adjusted ADL Model (RQ2)

To provide insight into framing dynamics during a crisis, the association between the specific news frames and news frame diversity was analyzed, answering RQ2. The partial adjusted ADL model is presented in Table 2 with news frame diversity serving as the dependent variable and a fraction of its past value and the identified news frames as independent variables. In addition, news attention is incorporated as a control variable in this analysis.

The reported coefficient of the autoregressive term (L. news frame diversity) indicates that news frame diversity was not an autoregressive

TABLE 2 Partial Adjustment Autoregressive Distribution Lag Model Predicting News Frame Diversity Based on Identified Frames

	News frame diversity
L. news frame diversity	0.05 (0.141)
News frame	
Support	0.51 (0.07)**
Victim	0.60 (0.08)**
Protection	0.37 (0.06)
Intensification	-1.26 (0.40)*
Outbreak	-0.28 (0.04)
Contagion	-1.63 (0.04)**
Local infections	-0.29 (0.05)
Politics	0.59 (0.07)
Prevention	0.10 (0.06)
Research	0.16 (0.12)
Consequences	0.11 (0.17)
News attention	1.70 (0.02)*
R^2	0.58

Note. Cells contain standardized (β) regression coefficients with standard errors (SE). The independent trend variable and constant are absent from this table.

* $p < 0.10$. ** $p < .05$.

process ($\beta = 0.05$, $p = .72$), meaning that past values are not predictive of future values. Thus it seems that the development of frame diversity in news media over time was dynamic and random, corresponding to a degree of instability in the crisis development. In addition, the results provide evidence that the rise of certain frames can decrease the variety of frames present in news media coverage. More specifically, an increase in presence of the contagion frame in news media was associated with a significant decrease in news frame diversity ($\beta = -1.63$, $p < .01$). This suggests that when frames with words emphasizing the contagious nature of the virus, such as *disease*, *spread*, and *infected*, were increasingly present in the coverage, other frames were

pushed from the media agenda. Similarly, a rise of the intensification frame in news media was associated with a decrease in frame diversity ($\beta = -1.26, p < .10$).

An opposite effect, however, is evident for other frames. The results reveal that greater presence of the support frame was associated with a significant increase in frame diversity in news media coverage ($\beta = 0.51, p < .01$). This demonstrates that when news reporting increasingly made the need for the international support of the affected countries salient by using words such as *support*, *countries*, and *community* (support frame), the variety of frames also increased. Moreover, the results suggest that a rise in presence of the victim frame was also associated with a significant increase in news frame diversity in news coverage ($\beta = 0.60, p < .01$). Specifically, increasing emphasis in words such as *family*, *sick*, and *Liberia* in the news highlighting the need for help (victim frame) resulted in more heterogeneous framing in news media coverage. In sum, the findings of this analysis expose a framing process where the rise of certain frames pushes other frames from the agenda, thereby decreasing news frame diversity, whereas other frames seem to allow a plurality of frames in news media that coexist alongside each other.

Frame Alignment and News Frame Diversity: VAR Model (RQ3)

To explore the relationship between frame alignment and news frame diversity, a VAR model was estimated. Table 3 displays the estimated reciprocal effects of the two dependent variables. In addition, news attention was included in the model as an exogenous variable. The model is absent of autocorrelation and heteroscedasticity, as indicated by the Ljung–Box Q test and the Lagrange multiplier test (Vliegenthart, 2014), revealing that the model is well specified. Moreover, the model explains a considerable amount of variance of both series, with an R^2 value of .19 for new frame diversity and .41 for frame alignment.

The Granger causality test hints that frame alignment Granger-causes news frame diversity, indicated by the significant effect. Hence the prediction of news frame diversity is increased by taking into account the level of frame alignment between the actors in the previous

TABLE 3 *Granger Causality Tests for Frame Alignment and News Frame Diversity*

	Frame alignment	News frame diversity
Frame alignment: Granger		6.56*
News frame diversity		
Granger	0.19	
Ljung–Box <i>Q</i> (20)	16.56	17.86
Lagrange <i>M</i> -test (20)	21.38	14.90
AIC	25.55	
BIC	38.65	
<i>R</i> ²	0.19	0.41

Note. The model includes the news attention as an exogenous variable. The AIC suggests that a model with one lag is the most appropriate. AIC = Akaike information criterion. BIC = Bayes information criterion.

**p* < .05.

week. A reversed effect of news frame diversity on frame alignment is not observed, indicating an asymmetrical relationship where only the time series of frame alignment contains information about the time series of frame diversity in news media coverage.

This is also reflected in Figure 1, which displays the times series for news frame diversity and frame alignment with transformed *z*-scores. The graph shows that changes in frame alignment often preceded changes in news frame diversity, which suggests that an increase (decrease) in frame alignment resulted in an increase (decrease) in news frame diversity. An impulse response function provides further insight. The function indicates that a 1-point increase in frame alignment triggered an increase in .28 of news frame diversity in the following week. While the effect is positive and immediate, the impact of the effect declines slowly and gradually during the following weeks. In sum, the results indicate that when frames between actors become more similar, the diversity of frames in media increases. In other words, the results suggest that a level of shared interpretations between news media and GOs about what the crisis signifies resulted in more heterogeneous framing in news media reporting, thereby answering RQ3.

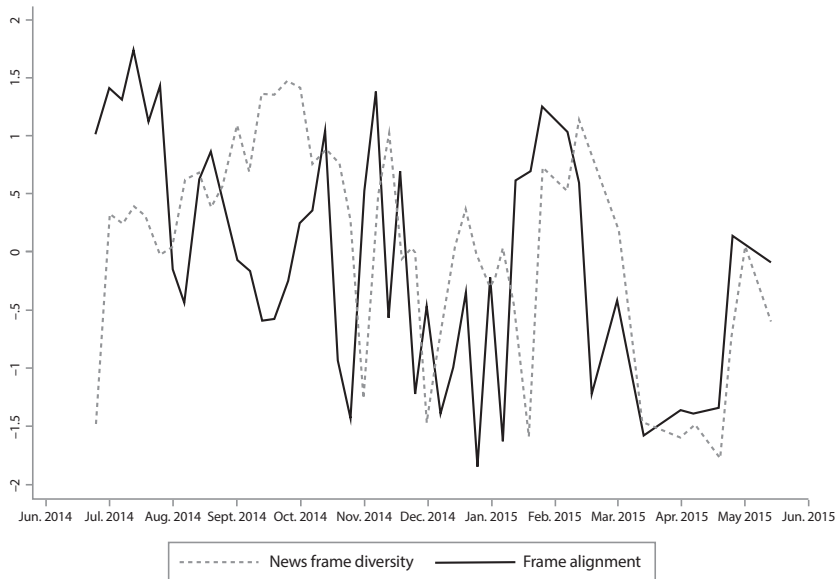


FIGURE 1. Times series for news frame diversity and frame alignment transformed to z-scores.

Discussion

The aim of this study was to shed light on the dynamic evolvement of frames in news media coverage of the Ebola crisis (2014–2015) and their interplay with frames promoted in GOs' press releases. First, this study automatically identified frames that both actors had constructed (RQ1). The results reveal that frames such as the outbreak frame and contagion frame were salient in both actors' communication. This seems to align with previous research that found that news media and their cited sources were predominantly alarming during the coverage of the A/H1N1 epidemic (Vasterman & Ruigrok, 2013). Perhaps these frames can be classified by their immediate character and could therefore be considered natural frames caused by the urgency and complexity that result from the occurrence of a crisis, explaining why these frames are prominent in the communication of both actors. At the same time, other frames were actor specific (e.g., GOs: support frame; U.S. news media: intensification frame), revealing differences in framing.

The results suggest that frames that emphasized the perceived intensification of the crisis due to the proximity of the Ebola infections (intensification frame, local infections frame) were strongly present in news media coverage but were largely absent from the GOs' agenda. News coverage seemed to be heavily event driven and sensationalist, with a focus on the hospitalization of U.S. individuals. In contrast, GOs' press releases seemed to have focused on local interventions (support frame) and broader economic consequences (consequences frame). Considering Iyengar's (1991) previously applied typology of episodic and thematic frames, it seems news media coverage was more episodic compared to GOs' press releases. While this stands in contrast to findings of Lee and Basnyat (2013) in the context of the H1N1 crisis, it supports the results of Dudo et al. (2007) on the avian influenza coverage.

This might suggest that GOs paid little attention to local incidents, possibly because the millions of cases in West Africa outweighed the few U.S. infections. GOs might focus more strongly on providing detailed information that is cross-validated and placing the events in a broader global context (i.e., focus on thematic framing) rather than spreading the newest developments in the crisis that can potentially cause public panic. This explanation might indicate GOs' awareness of their public function as an expert information source and regulator of public understanding.

Second, a partial adjusted ADL model was estimated, investigating the relationship between the presence of identified news frames and news frame diversity (RQ2). The results indicate that individual frames have the potential to narrow or widen the media's scope of frames and therewith intensify or ease the crisis atmosphere (Kleinnijenhuis et al., 2015).

On one hand, news frame diversity was decreased by frames that emphasize the dramatic nature of the crisis and put specific events and individuals at the center of reporting. Specifically, with an increasing focus on the spread of the highly contagious virus (contagion frame) and the first infections within the United States (intensification frame), framing in news coverage became more homogenous. This observation is in line with previous research that has suggested that news coverage during health crises is driven by specific incidents (Dudo et

al., 2007; Shih et al., 2008) and that key events can lead to a focus on fewer, event-oriented frames (Scheufele, 2006). The drop in news frame diversity can, therefore, possibly be attributed to the intensification of the situation. A perceived crisis escalation might have resulted in a narrow focus (Suedfeld & Tetlock, 1977) and fostered a concentration on problems (e.g., Kleinnijenhuis et al., 2015). Owing to the limited capacity of news media (Zhu, 1992; Zhu & McCombs, 1995), alternative viewpoints and interpretations remained absent, crowded out by these predominant negative and sensational frames (Entman, 2003). Thus the results also correspond with seminal research that has indicated that specific crisis frames have the potential to temporarily displace alternative interpretations (e.g., Geiß et al., 2016) and conceal narratives that promote alternative solutions to epidemics, such as local interventions in Africa, that are context specific and address long-term implications (Leach et al., 2010).

On the other hand, a rising emphasis on frames that focus more strongly on the crisis progress and highlight the help needed for victims (i.e., support frame and victim frame) increased news frame diversity. This suggests that with the increasing presence of more constructive news frames that emphasized the importance of supporting the affected countries (support frame) and highlighted the impact of the crisis on a broader scope (victim frame), the variety of narratives and interpretation also increased. These latter frames seem to have made the process and development of the crisis salient from a wider and more inclusive perspective, emphasizing the global scale of the events and introducing possible solutions into coverage. Perhaps, these frames could therefore be considered progressive frames. This effect might be related to a progressing dialogue and exchange of information. Previous research has observed that with the advancement of the crisis, news media coverage became less alarming (Vasterman & Ruigrok, 2013) and more open to a diverse set of narratives (Kleinnijenhuis et al., 2015), which increased diversity and fostered a variety of perspectives on the situation (Wong et al., 2011). Thus it may be that as the news media turned to the discussion of solutions, frame diversity increased. An alternative explanation, however, should not be neglected. It is also plausible that the presence of these two frames simply coincided with phases of higher

frame diversity in news media reporting, which created the necessary space in coverage for these alternative perspectives to arise.

Finally, a VAR model was estimated to analyze the relationship between the level of frame alignment between actors and news frame diversity (RQ3). The underlying question was whether heterogeneity in perspectives in news media (high news frame diversity) creates the basis for shared understanding about the events across actors (frame alignment) or if a degree of shared interpretation of the crisis is at the core of the media being open for a variety of interpretations. The model provides evidence that an increase in frame alignment between GOs and media produced greater frame diversity in news media. The direction of the relationship seems to suggest that in the development of a crisis, a degree of mutual understanding between actors about the meaning of the events (Hellsten et al., 2010; Snow et al., 2007; Van der Meer et al., 2014) is instrumental for news media to open up for diverse narratives. Specifically, the rapprochement between the frames that were offered by GOs and the frames present in news media coverage appeared to have had a soothing effect on the news media coverage, triggering a phase in which a variety of alternative information and perspective were covered in the news. In times of crisis, news media seem to reflect the social negotiation of how to frame the critical situation at play rather than lead how to interpret and communicate about the crisis. The degree of alignment might have served as an indicator for involved actors that a degree of consensus had been reached (Van der Meer et al., 2014), the situation de-escalated (Weick, 1988), and crisis atmosphere can ease.

The results of this study contribute to the body of literature on crisis communication as well as framing theory and have certain practical implications. First, the findings enrich the crisis literature by providing further insight into the dynamic news media crisis coverage and how it was affected by interaction with GOs. Epidemic outbreaks are dynamic and complex processes with a variety of competing narratives (Leach et al., 2010). This study applied time series analysis to provide insight into the interaction of different frames, thereby answering the call for a more complex and dynamic investigation of the communicative interplay between actors in times of crisis (e.g., Schultz et al., 2012). Second, this

study contributes to the literature on an empirical level by proposing an innovative way to quantify the presence of automatically identified frames in a large number of texts. In contrast to the majority of previous framing research on epidemics, this study followed an inductive approach to identify frames, enabling the recognition of the full variety of frames specific to the Ebola crisis (Semetko & Valkenburg, 2000). Future health crisis research might benefit from applying a similar approach to identify frames unique to the crisis under study. Third, by focusing on organizations from the public sector, this study started to fill an important gap and enhances understanding of GOs' interaction with news media in times of crisis (Liu & Horsley, 2007; Schultz & Raupp, 2010). Based on the results, it seems GOs need to recognize the zero-sum dynamic in media coverage where narratives focusing on the immediate problems of the crisis are likely to dominate news media coverage. This narrow focus might have adverse consequences for the crisis atmosphere and can hinder the emergence of solutions. However, news media coverage appears to become more inclusive of alternative narratives with the emergence of common interpretations across actors. Thus GOs might benefit from adjusting their communication and signal acknowledgment of the immediate problems early to allow a communicative shift toward an alternative more encompassing discourse. By aligning their framing and crisis interpretations to the news media coverage, GOs could stimulate an increase in frame diversity in news media coverage and thereby soothe the crisis atmosphere.

While this study makes some valuable contributions, a number of shortcomings must be considered when interpreting the results. First, the findings relate to a specific context of study, namely, Ebola in the years 2014 and 2015 reported in U.S. newspapers, which limits its generalizability. Second, this study did not differentiate between U.S.-based and international health organizations. Thus future research could analyze whether different framing dynamics can be observed between them. Third, the automated analysis started from the assumption that bags of words are sufficient to retrieve the general meaning of the text. Although this neglecting of syntax enables analyzing a large number of texts (Grimmer & Stewart, 2013), it risks obscuring information. Finally, despite the automatic identification of frames, the analysis faced a degree

of subjective interference because frame presence was identified based on manually created search strings. The method chosen to determine the strings resulted, for some frames, in a limited number and selective combination of words, which might have influenced the findings. Therefore future research should validate the results and see whether the findings of the Ebola crisis also hold in other crisis situations.

Conclusion

To conclude, this study provides insight into the underlying communicative dynamics between news media and GOs that influence the construction and evolvement of crises over time. Results of analyzing the concepts of news frame diversity and frame alignment in communicative interplay during crisis demonstrate that shared interpretations seem to foster the openness of news media for varying narratives. Therefore timely and constructive communicative interaction between the news media and GOs seems to have a soothing effect on news media coverage.

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Personal, Interpersonal, and Media Predictors of Fear of Ebola

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ABSTRACT

Fear of infectious disease has the potential to damage local economies, disrupt health care delivery systems, and diminish immune functioning, whether or not the risk is objectively high. The appearance of Ebola in the United States offered an opportunity to study the causes of fear in a real-world event. Shortly after the death of the first Ebola patient diagnosed in the United States, survey data were gathered ($N = 849$) from residents of Dallas and U.S. citizens outside of Texas. Fear was positively associated with age (younger), gender (female), and ethnicity (non-White), but not geographic proximity (Dallas vs. not Dallas). Exposure to Ebola-related information via interpersonal channels (friends/family, acquaintances/coworkers) corresponded with higher levels of fear, but the findings for media channels were more varied, showing positive effects (newspapers/magazines), negative effects (Internet), and null effects (TV/radio). The study provides insight into the personal, interpersonal, and media correlates of fear of Ebola.

KEYWORDS: Fear; media; interpersonal; communication; infectious disease; Ebola

Although infectious diseases can produce devastating biological effects, nonbiologic outcomes may be equally consequential (Lempel, Epstein, & Hammond, 2009). Fear can decrease immune functioning, produce delays in care seeking, and damage the local economy (Van Bortel et al., 2016). Furthermore, such effects may occur whether or not fear of the disease is objectively justified (Smith, 2006).

These observations underscore the importance of understanding fear as a potential health problem in its own right. Surprisingly, only a handful of studies have considered fear as the focus of investigation (e.g., Nelissen, Beullens, Lemal, & van den Bulck, 2015). The 2014 arrival

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of Ebola in the United States presented an opportunity to address this understudied issue by examining fear in response to a public health crisis, notably, one that experts believed posed almost no danger to the public at large.

The project embraced three broad questions. The first, concerned with audience segmentation, focused on person-level correlates of fear. Given the possibility of affective disparities, we tested for associations between fear and gender, age, ethnicity, and proximity to the threat. Second, in light of the intense news coverage of Ebola, we considered the relationship between media exposure and fear. To complete the picture (third), we examined the role of interpersonal communication. This was justified on the grounds that individuals often share information about their emotional states and the causes thereof (Rimé, 2007). Our overarching goal was to produce a layered analysis of the correlates of fear.

A Brief History of Ebola in the United States

Ebola produces a range of symptoms that include internal and external hemorrhaging (World Health Organization, 2015) and an average case fatality rate of 50%. The outbreak that began in Africa in March 2014 eventually developed into the largest epidemic of Ebola in history (Centers for Disease Control and Prevention, 2015). By summer of that year, the epidemic began to draw increased attention from the U.S. press and government that continued to grow in subsequent months. In a September 16 press release, Lamar Alexander, senior Republican on the Senate's health committee, said, "This is one of the most explosive, dangerous, deadly epidemics in modern times. . . . There is no known cure. Half of those who get sick die" (U.S. Senate Committee on Health, Education, Labor, and Pensions, 2014).

On September 30, 2014, Eric Thomas Duncan, a resident of Dallas who had been traveling in Liberia, tested positive for Ebola. He died 8 days later. Duncan's two nurses, Nina Pham and Amber Vinson, contracted the disease and became the second and third cases of Ebola in the United States. What followed has been described as a media frenzy (Bruinius, 2014). Indeed, media sources frequently used the phrase

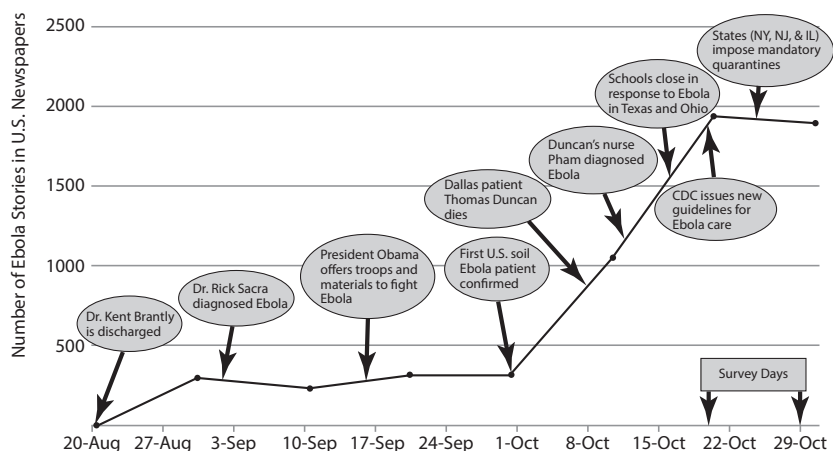


FIGURE 1 Timeline of Ebola events and media coverage. In the LexisNexis Academic News Sources database, we searched for articles with “Ebola” as keyword in both the title and the body in U.S. newspapers from August 20 to October 29, 2014. To assess trends in media coverage, we gathered data about the total number of Ebola-related news stories for 10-day periods. The results are plotted as data points and connected with lines.

“epidemic of fear” to describe the mood of the country (e.g., Gilsinan, 2014). A *Washington Post* story reported that “this is both a biological plague and a psychological one, and fear can spread even faster than the virus” (Sun, Dennis, Bernstein, & Achenbach, 2014). Collectively, these events warrant characterization of the situation as a megacrisis (Sellnow-Richmond, George, & Sellnow, 2018). Figure 1 illustrates media coverage of the disease along with notable Ebola-related events.

The Nature and Effects of Fear

Fear is a negatively valenced emotion that follows from the perception that one is at risk of harm (Frijda, 1986; Lazarus, 1991). It is indexed in the English language by a family of terms that range from *worried* to *terrified*. Synonyms that lie near the center of the intensity continuum include *scared*, *afraid*, and *frightened* (Ortony, Clore, & Collins, 1988).¹ At moderate levels, fear provides the motivational basis for self-protective behaviors, such as information seeking (Kim & Niederdeppe, 2013). But, when fear becomes more intense, it can constrict the perceptual

field and preclude longer range thinking. Some writers have asserted that infectious diseases may have special power to instill fright because viral agents are invisible, colorless, and odorless (Alcabes, 2009). The inability to directly perceive the threat can escalate worry into intense fear and dread (Alcabes, 2009).

Problems associated with fear of infectious disease play out at three levels (Van Bortel et al., 2016). Among individuals, fear may interfere with the ability to perform one's job and to successfully enact social relationships (Tamir, 2016), as well as decrease job satisfaction and increase stress (Hartley, Davila, Marquart, & Mullings, 2013). Fear and related disorders, such as posttraumatic stress syndrome, have also been associated with diminished cardiovascular fitness (Suls & Bunde, 2005), decreased immune system functioning (Segerstrom, Solomon, Kemeny, & Fahey, 1998), and degraded psychological health (Silver et al., 2013). At the community level, fear can accelerate the spread of disease (Schulz et al., 2016), cause delays in care seeking (Yamanis, Nolan, & Shepler, 2016), disrupt health care delivery systems (Barrett & Brown, 2008), and diminish trust in health services (Van Bortel et al., 2016). Fear can also produce unwanted outcomes at the state and national levels. For instance, areas impacted by infectious diseases may experience loss of investment and decreased tourism/travel (Lempel et al., 2009). In sum, fear has the potential to produce seriously undesirable outcomes depending on its intensity.

Personal Predictors of Fear: Demographics

It is generally accepted that there is value in understanding responses to disasters via demographic grouping (Liu, Fraustino, & Jin, 2017). Certain demographic variables have been associated with perceived risk and emotional response. One is gender. Men perceive lower levels of risk relative to women, a finding that is typically attributed to socio-political factors rather than biology or knowledge deficits (Finucane, Slovic, Mertz, Flynn, & Satterfield, 2000; Flynn, Slovic, & Mertz, 1994). Similarly, recent work has found that men report lower levels of fear to a variety of stimuli. This relationship holds even after controlling for gender role adherence (Campbell et al., 2016).

Age, another demographic descriptor, generally shows an inverse correlation with intensity of negative affect (Charles, Reynolds, & Gatz, 2001). Socioemotional selectivity theory explains this relationship in terms of greater *motivation* to down-regulate negative feelings (Carstensen, 2006). In contrast, the strength and vulnerability integration model emphasizes *ability*. Presumably, older individuals are more skilled at emotion regulation than their younger counterparts (Charles, 2010).

There is also evidence that ethnicity corresponds with perceived risk and emotional response. Whites generally perceive lower levels of environmental risk compared to non-Whites (Finucane et al., 2000; Flynn et al., 1994), and following disasters, Whites show lower levels of sadness, which is typically correlated with fear, than non-Whites (Chu, Seery, Ence, Holman, & Silver, 2006). It has been argued that the tendency for persons of African descent (vs. Whites) to report higher levels of affect can be explained in terms of cultural differences that place a higher value on emotions and emotional expression (White & Parham, 1990).

The goal of this study was not to evaluate competing explanations for these findings. Rather, we aimed to assess whether the same demographic variables might be useful for identifying segments of the population that are especially prone to fear of infectious disease. Purely on the basis of prior findings, the following was expected:

H1: Fear is negatively associated with (a) gender (male), (b) age, and (c) ethnicity (White).

Personal Predictors of Fear: Proximity

Appraisal theories of emotion posit an explicit causal sequence that leads to emotion arousal (Frijda, 1986; Lazarus, 1991). First, some change takes place in the environment. Next, the individual appraises the implications of the change for his or her well-being. Assuming that the change is seen as relevant, some emotion results, the type and intensity of which depend on other appraisals. Fear, for example, requires that the individual see the change as involving impending danger.

Reason suggests that geographic proximity to a threat should enhance fear, probably due to perceptions of increased susceptibility and, perhaps, severity. Research has borne this out. Ruiz and Hernandez (2014) found that residents of the Canary Islands who were closer to a volcanic eruption reported higher fear than those who were more distant. Other studies have shown that fear increases as a function of physical proximity to acts of terrorism (Holman, Garfin, & Silver, 2014; Stitka, Bauman, & Mullen, 2004). Furthermore, analysis of Twitter data revealed that the percentage of tweets expressing fear in countries with confirmed cases of Ebola was higher than in adjacent countries, which was higher than in distant countries (Zhuang, Peng, & Tang, 2018). Given the appearance of Ebola in Dallas and the failure of the health care system there to contain the disease, we anticipated that residents of Dallas would experience higher levels of fear than persons in other parts of the United States:

H2: Fear is positively associated with physical proximity to the threat.

Media and Interpersonal Predictors of Fear

It is possible for individuals to encounter hazards, such as infectious disease, by contracting the malady themselves or by directly observing its effects in others. This was true for the health professionals in Texas who cared for Eric Thomas Duncan, Nina Pham, and Amber Vinson. However, we suspect that it is more common for people to learn about health threats from other people (including media) than directly. This was the case for the millions of Americans who did not have direct contact with Duncan, Pham, or Vinson. Thus it seems quite likely that risk appraisal and the fear that follows from it are shaped by a variety of indirect social processes. The social amplification of risk model holds that individuals, groups, and institutions can act as *amplification stations* that serve to amplify or attenuate risk perception when they communicate about the hazard (Kasperson, Kasperson, Pidgeon, & Slovic, 2003).² Two such stations are media and interpersonal networks. An abundance of research has shown that frequency of exposure to risk information via mediated or interpersonal channels is a positive

predictor of fear and/or risk. For instance, a meta-analysis of cultivation research reported that frequency of exposure to television is positively associated with perception of real-world violence (Morgan & Shanahan, 1997). Other work has indicated a positive relationship between media exposure and health-related risk estimation (Coleman, 1993; Morton & Duck, 2001), perceived disease severity (Young, Norman, & Humphreys, 2008), fear of cancer (Nelissen et al., 2015), and fear of terrorism (Nellis & Savage, 2012; Silver et al., 2013). Shrum (2008) offered a cognitive explanation for such effects when he asserted that frequency of activation is sufficient to enhance the accessibility of constructs in memory. On this view, concepts become stronger and more easily activated as a function of frequency of activation:

H3: Fear is positively associated with frequency of exposure to threat-related information via media channels.

Although there are many ways to define interpersonal communication, it is commonly conceived to be interaction between two individuals that takes place in real time (cf. Solomon & Theiss, 2013). Compared to media research on risk and fear, findings regarding the effects of interpersonal communication are fewer in number and less consistent. For instance, Coleman (1993) found discussion effects for certain social risks but not for personal risks, whereas Trumbo (1996) reported that risk perceptions were driven by frequency of interpersonal discussion only among individuals who are predisposed toward amplification of risk. Work that assessed the perceived risks and benefits of a biological research facility showed frequency effects on benefits, but not risks (Binder, Scheufele, Brossard, & Gunther, 2011). Thus, while the existing literature is hardly univocal, there is evidence of frequency effects for interpersonal discussion. The precise mechanism by which these effects occur may be debated, but the simplest explanation is that message repetition about a risky topic is sufficient to evoke fear regardless of channel. As with mediated messages, frequency of concept activation increases construct accessibility. Consequently, we make the following hypothesis:

H4: Fear is positively associated with frequency of exposure to threat-related information via interpersonal channels.

Complexities in the Prediction of Fear?

Prior research has indicated that interpersonal communication may interact with media exposure to alter individuals' knowledge, attitudes, or behaviors, either by amplifying the impact of media or by dampening it (e.g., Hardy & Scheufele, 2005; Scheufele, 2000, 2001, 2002; Southwell & Yzer, 2007, 2009). For example, Southwell (2005) found that the positive relationship between adolescents' exposure to an antidrug advertisement and their memory of it was moderated by interpersonal communications about the ad. Those who talked more about the ad remembered the ad content better. Similarly, interpersonal communication with family and friends has been shown to interact with Internet and television use to affect healthy lifestyle behaviors (Lee, 2009). Although previous research has seldom tested for this interaction on emotional response, it is plausible given that interpersonal conversations can amplify perceived risk. Thus we ask the following:

RQ1: Does interpersonal communication moderate the relationship between media exposure and fear of Ebola?

Although proximity to the outbreak of an infectious disease might be expected to create more intense fear responses, that may not be the only effect of location. Indeed, it seems likely that media tasked with reporting on local news might give greater coverage to the event than would national news. And residents of the city where the outbreak has occurred could be more inclined to discuss the matter with friends, family, and coworkers than would individuals at far remove. These higher levels of communication might differ in content or emphasis, making the threat appear more immediate or severe. These possibilities raise the following question:

RQ2: Is fear partially determined by an interaction between proximity and message exposure (media, interpersonal, or both)?

Method

Sample and Participants

Participants were members of Qualtrics's opt-in, online survey panel. They received an invitation to participate via e-mail; provided data between October 21 and 29, 2014 (cf. Figure 1); then subsequently received compensation. As is generally the case with opt-in panels, response rate cannot be assessed because the number of invitations exceeds the a priori designated sample size. Once the target sample size is reached, the survey closes, and it is not known how many more participants would have accepted had it remained open.

Screening questions ensured that approximately half of the sample resided in the Dallas metropolitan area, whereas the remainder was balanced across census regions in the continental United States (but not including Texas). With the elimination of the 16 persons who spent more than 2 hours or fewer than 2 min completing the survey, the final sample ($N = 849$) was 46% male and 54% female, ranging in age from 18 to 64 years ($M = 40.59$, $SD = 14.01$). As to ethnic identification, 74% of participants identified as White, 14% as Black or African American, 9% as Hispanic, 5% as Asian or Pacific Islander, 3% as Native American

TABLE 1 Comparison of Dallasites and Non-Dallasites

	Dallasites	Non-Dallasites	t or χ^2	p -Value
Age (mean in years)				
Sample statistics	41	39	1.27	0.20
Population census data	32	37		
Gender (male; %)				
Sample statistics	55	37	27.33	<0.001
Population census data	50	50		
Ethnicity (White; %)				
Sample statistics	71	78	5.13	0.02
Population census data	51	77		

Note. Census data in the Non-Dallasites column are based on the entire United States, including Dallas. Census data on age for both Dallasites and non-Dallasites are median values in 2014.

or American Indian, and 2% as “other,” without specifying their ethnicity. Six percent of the participants identified with multiple ethnicities. There were 417 respondents from the Dallas metropolitan area and 432 from outside of Texas. Table 1 presents demographic comparisons of the two groups with one another and with census data. The study was approved by the Institutional Review Board at Pennsylvania State University.

Statistical Power

Assuming $\alpha = .05$, two-tailed, and $N = 849$, power to detect a bivariate effect equal to r of .10 was .83. Thus the study possessed adequate power to detect small effects.

Measurement

Demographics. Participants provided information on their gender (male = 1; female = 0), ethnicity (White = 1; non-White = 0), and age in years.

Proximity. A screening question asked respondents whether or not they lived in Dallas. Responses were verified against longitude and latitude data provided by Qualtrics. Location was a binary variable, where Dallas = 1 and not Dallas = -1.

Message exposure via media and interpersonal channels. Level of exposure was estimated by asking respondents to estimate how often they have encountered information, in the past couple of months, about Ebola in newspapers or magazines; on television or radio; on the Internet; in conversation with friends or family; and in conversation with acquaintances, coworkers, or strangers. Judgments were made on a 5-point scale ranging from 1 (*never*) to 5 (*more than 10 times*). An index of interpersonal communication of Ebola information was created by averaging the two interpersonal channel items given that they were moderately correlated ($r = .66$, $\alpha = .80$) and their relationships with other variables were parallel.

Fear. Using a response scale ranging from 0 (*none of this emotion*) to 4 (*a great deal of this emotion*), respondents were asked to mark the numerical values that best indicated how the current news about Ebola made them feel. Two items were drawn from a larger set of items whose

TABLE 2 Descriptive Statistics

	<i>M</i> (<i>SD</i>)	1	2	3	4	5
1. Newspapers/mags	2.86 ^a (1.51)	–				
2. TV/radio	3.99 ^a (1.27)	0.36*	–			
3. Internet	3.68 ^a (1.37)	0.40*	0.34*	–		
4. Interpersonal communication	3.12 ^a (1.23)	0.44*	0.44*	0.50*	0.80	
5. Fear	1.62 ^b (1.28)	0.13*	0.01	0.02	0.15*	0.91

Note. *N* = 849. Values in the diagonal are Cronbach's alpha.

^aPossible range = 1–5. ^bPossible range = 0–4.

**p* < .001.

validity had been established in previous research (Dillard & Shen, 2006). Given strong correlations with the latent variable fear (in those studies), it was determined that two items were sufficient to create a reliable index. Thus, to minimize respondent fatigue, we utilized only *afraid* and *scared* ($\alpha = .91$).

Results

Descriptive Results

As shown in Table 2, on a 0–4 scale, the mean value for fear was 1.62. However, the sample showed responses across the full range of the scale. For the five Ebola-related message exposure variables, the means ranged from 2.86 to 3.99 on a 1–5 scale, which suggested medium to high levels of exposure to Ebola-related information.

Model Fitting

Two regression analyses were conducted with fear as the dependent variable. In both cases, the person variables were entered first as a block, followed by the mean-centered measures of mediated and interpersonal message exposure variables in the second block. In one analysis, the third block contained interaction terms for media and interpersonal exposure variables. In the other analysis, the third block contained product terms for location (+1/–1), with each of the mean-centered exposure indices. The results are given in Table 3.

TABLE 3 *Regression Analyses Predicting Fear*

Block	Predictor	B	95% CI	β	R	R ² Δ
1	Gender (male)	-.31	-.48, -.13	-.12**	.17	.03***
	Age	-.01	-.01, -.000	-.07*		
	Ethnicity (White)	-.19	-.39, .004	-.07 ⁺		
	Proximity (Dallas)	-.05	-.14, .04	-.04		
2	Newspapers/mags	.10	.03, .16	.11**	.26	.04***
	TV/radio	-.04	-.12, .04	-.04		
	Internet	-.11	-.18, -.03	-.12**		
	Interpersonal	.19	.10, .28	.18***		
3a	Interpersonal \times Newspapers/Mags	.04	-.01, .09	-.06	.27	.004
	Interpersonal \times TV/Radio	.01	-.06, .07	.01		
	Interpersonal \times Internet	-.04	-.11, .02	-.06		
3b	Proximity \times Newspapers/Mags	-.01	-.08, .06	-.01	.28	.002
	Proximity \times TV/Radio	.01	-.07, .09	.01		
	Proximity \times Internet	.03	-.05, .10	.03		
	Proximity \times Interpersonal	-.01	-.11, .08	-.01		

Note. $N = 849$. Regression coefficients in Block 1 were estimated using only predictors in that block. The Block 2 estimates are based on the full set of predictors in Blocks 1 and 2. Similarly, Block 3 estimates are based on all prior blocks.

⁺ $p = .055$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis Tests

H1A, which predicted a negative association with gender, was supported. The standardized coefficient, $\beta = -.12$, $p = .001$, indicated that men reported lower levels of fear than women. H1B anticipated a negative relationship between age and fear. With $\beta = -.07$, $p = .039$, the hypothesis was supported. Older respondents experienced fear less intensely

than their younger counterparts. H1C predicted a negative coefficient for ethnicity, which was borderline significant, $\beta = -.07, p = .055$.

H2 specified a positive association between proximity to the outbreak and fear. Because the observed difference between Dallas residents and nonresidents was not significant, $\beta = -.04, p = .277$, this hypothesis was not supported.

H3 predicted positive associations between fear and indices of media exposure. The regression analysis estimated these relationships as follows: for newspapers/magazines, $\beta = .12, p = .003$; for TV/radio, $\beta = -.04, p = .341$; for Internet, $\beta = -.12, p = .005$. Support for H3 was mixed.

Similarly, H4 anticipated positive effects for interpersonal exposure on fear. Indeed, exposure to Ebola information via interpersonal channels significantly predicted fear, $\beta = .18, p < .001$. Thus H4 was supported.

RQ1 focused on the interaction effects between interpersonal and media exposure to Ebola messages (see Block 3a in Table 3). We used the mean-centered interpersonal and media exposure variables to create the interaction terms (product terms). R^2 change for the block was .004, $p = .351$. None of the terms was significant. Thus there was no interaction effect of message exposure on fear via different channels.

RQ2 examined the potential for proximity and message exposure to interact in their effect on fear. Block 3b of Table 3 assessed the data for these interactions. R^2 change for the block was .002, $p = .839$, and none of the individual terms was significant. Thus message exposure effects were not conditioned on location.

Discussion

The Intensity of Fear

A majority of our sample (80%) reported experiencing some degree of fear (i.e., >0 on a 0–4 scale). Yet, the mean value of 1.62 seemed rather modest and not in keeping with news characterizations of the public mood as an “epidemic of fear and anxiety” (Harlan, 2014). To put these values in perspective, it may be useful to consider two points of reference. On one hand, levels of fear and perceived threat in the data were comparable to the SARS outbreak in 2003 and the H1N1 pandemic in 2009. In both cases, more than half of the Americans surveyed

indicated that they were not that worried about the threat (Moore, 2003; Pew Research Center, 2003, 2009; Saad, 2009). From this, it seemed sensible to conclude that the Ebola crisis was nontrivial but that media interpretations of it were overblown.

On the other hand, Americans were far more concerned than they should have been. The level of fear reported by our sample might be viewed as a vast overreaction to the true risk posed by Ebola. Indeed, one Internet meme held that Americans were more likely to marry a Kardashian ($n = 3$) than to die from Ebola ($n = 1$). According to health experts (e.g., Friedman & Schapiro, 2014), the Kardashian comparison was reasonably accurate. Thus the series of events was psychologically significant for many members of the public, despite the fact that high levels of fear were not objectively justified.

Personal Predictors of Fear: Demographics

Demographic variables were included in this study to determine whether fear varied as a function of group membership. On this point, the data provided some reasonably clear answers. Persons who were female, younger, and non-White all showed heightened levels of fear of Ebola. These results are consistent with prior research showing that membership in these categories is associated with higher fear levels for other sorts of adverse events (e.g., Campbell et al., 2016; Charles, Reynolds, & Gatz, 2001; Chu et al., 2006). To the extent that Ebola is representative of other infectious diseases, this provides a rationale for demographically targeted communication efforts designed to reduce public fear during times of crisis.

The results also suggest the existence of a heretofore unidentified form of health disparity, one based on emotional response. Members of these demographically defined groups, and especially those who belong to multiple categories, are at relatively greater risk for the subjective experience of fear as well as downstream effects, such as diminished biological and psychological health (Segerstrom et al., 1998; Silver et al., 2013).

There is, however, one important qualification to these conclusions. Because our sample was 74% White, we were unable to provide meaningful tests of differences among minority groups (which have

been observed in some previous work, e.g., Chu et al., 2006). More research is needed to better understand the prevalence and basis of group differences.

Personal Predictors of Fear: Proximity

A proximity effect was anticipated, such that Dallasites would be more frightened than persons living outside of Texas. Because the data did not show the expected effect, we considered alternative explanations. One was that media content varied in ways that dampened fear in Dallas or exacerbated it outside of Texas. With the aim of exploring this possibility, we searched for, but did not find, systematic comparisons of communication content in Dallas versus not Dallas. However, an analysis of one Canadian and one Nigerian newspaper offered an analog (Humphries, Radice, & Lauzier, 2017). Two consistent themes in the Canadian paper, which was geographically distant from the threat of Ebola, were an emphasis on global responsibility for combating the disease and the need for the Canadian government to stop Ebola before it spread into Western nations. The Nigerian paper, in contrast, focused on the risks of Ebola and the actions undertaken locally to safeguard the population. In addition, the Nigerian outlet more frequently critiqued Western coverage of Ebola as sensationalistic and actively resisted perceived stigmatization of Nigerians. In other words, the Canadian “outsider” paper framed Ebola more reactively, whereas the Nigerian “insider” publication gave greater emphasis to action and ingroup solidarity. Although our reasoning is obviously speculative, if the same communication dynamics were at work in our U.S. sample, they may have been responsible for the absence of a proximity effect in the data.

Another possibility is that precisely the opposite occurred; that is, rather than different locales producing different content, it is conceivable that news coverage did *not* vary. On this view, the Ebola crisis was treated by all news outlets as a national issue, and the public, regardless of location, perceived it as such. This account aligns well with Holman et al.’s (2014) data. Their work on the Boston Marathon bombing found no effect for physical proximity on acute stress symptoms but a positive, linear effect for media exposure. Together, the two results suggest

a media environment that defines the crisis broadly enough to override the influence of geography.

Both possibilities are compatible with one broader point. Although we thought it plausible that individuals closer to the threat would see themselves as more susceptible to it (and therefore experience greater fear), physical distance is not synonymous with psychological distance (Troe & Liberman, 2010). Going forward, researchers may wish to examine factors that moderate the correspondence between these two related but independent forms of distance.

Media and Interpersonal Predictors of Fear

The social amplification of risk model asserts that amplification stations function to modulate perceptions of risk, by either magnification or minimization. Our results are intriguing in that they demonstrate effects of both sorts as well as a null effect for TV/radio. As for amplification, frequency of exposure via newspapers/magazines showed the anticipated positive association with fear. This result echoes findings from many previous studies that reported an influence of media exposure on risk (e.g., Coleman, 1993; Young et al., 2008) but joins a relatively small number of investigations that found a parallel effect on fear (Nelissen et al., 2015; Silver et al., 2013). Interpersonal communication also showed positive relationships such that more frequent exposure to Ebola-related communication led to higher levels of fear of Ebola.

The observed effect of exposure is compatible with theories of memory that hold that semantically related words or concepts co-occur with the target more easily and frequently (Anderson, 1983; Doshier & Rosedale, 1989). Repeated exposure to the same stimuli has been found to facilitate memory of the stimuli—a phenomenon known as *repetition priming* (Logan, 1990). According to these theories, simple mention of Ebola should be sufficient to activate the cognitive appraisals that are responsible for fear.

That simple account is challenged, however, by the findings for TV/radio, which showed no detectable association with fear, and for Internet exposure, which was negatively correlated with fear. At the broadest level, these results are important in that they empirically illustrate the potential for different amplification stations to produce countervailing

(or no) effects for a specific threat. Although it is unclear whether this pattern of results is unique to Ebola or generalizable to other infectious diseases, it underscores the need to consider the interplay of influences within and across the categories of interpersonal and mediated communication.

At a more specific level, the study showed that newspapers/magazines were positively associated with fear, whereas Internet usage produced a negative association. While a definitive account of the findings is not possible, personal agency and message content may both play a role. In contrast to the sensationalism of corporate media, active seekers of information about Ebola may have sought and found—via the Internet—credible sources of health information, most which were saying that the risk of Ebola in the United States was vanishingly small (Friedman & Schapiro, 2014).

Complex Influences on Fear?

No interpersonal/media interaction effect was observed in this study. In other words, there was no indication that conversations about Ebola magnified or minimized the impact of media exposure on fear. Naturally, this raises the question of why interaction effects appear in some studies (e.g., Lee, 2009) and not others (e.g., the current project). Simply posing this question highlights a lacuna in the research literature. Although the possibility of interpersonal/media interactions has been raised, there is currently no theory designed to explain when or why such effects should be expected. Because research has suggested multiple factors that might govern the effect—message function, format, timing, topic, and network density (Southwell & Yzer, 2009)—it is clear that constructing such a theory will be a nontrivial, but much needed, undertaking.

In a similar vein, we considered the possibility that location would interact with message exposure. None of the four tests was significant. Although Ebola-related message exposure was generally higher in Dallas versus outside of Texas, there was no indication that the exposure–fear association varied in strength as a function of location. This null effect could be due to Ebola being seen as a national rather than local phenomenon at the time of our investigation. Indeed, many

newsworthy events took place beyond the Texas border. Schools were closed in Ohio as well as in Texas (Szabo, 2014), and both New York and New Jersey imposed a quarantine on travelers with possible Ebola contacts (Thompson, 2014). Of course, the possibility of sampling error cannot be ruled out.

Strengths and Limitations

This investigation has several noteworthy strengths, including a relatively large sample gathered at a critical moment in the unfolding of a real-world event. In addition, the results are reasonably clear, offering support for some expectations and an unequivocal lack of support for others.

Of course, the study also possesses noteworthy limitations. It is hard to generalize the findings to other infectious diseases given that the data are limited to one disease in one Western country at one point in history. Second, strictly speaking, cross-sectional data preclude causal inference. However, the nature of the variables under study tempers this principle. For example, it seems implausible that fear of Ebola exerted a causal influence on individuals' reporting of their gender, age, ethnicity, or location. However cross-sectional data do not allow us to rule out the possibility that fear influenced reporting of interpersonal and media exposure measures. But, at least in the case of media exposure, there is evidence that self-reports are reasonably valid indicators of more objective measures of the same variable (Southwell, Barmada, Hornik, & Maklan, 2002). Additional research using longitudinal or experimental designs is needed to sort out questions of causal flow.

Third, the nonprobability sample was not representative of the nation generally nor of Dallas specifically. Accordingly, point estimates in our data must be viewed with caution. Another substantial limitation to this investigation was the absence of measures of communication content. Having such information would have aided our interpretation of several findings, especially those concerned with interpersonal and media exposure. Future research would benefit from the inclusion of even gross indices of content. Work that links content analysis of media with individual-level data on interpersonal communication and fear would be especially valuable.

Finally, our indices of communication were relatively crude. Interpersonal communication was undefined for participants, which may have introduced error into the data to the extent that interpretations of the phrase varied across the sample. And the media measures were not sufficiently granular to capture exposure via social media channels like Instagram and Twitter (Sellnow-Richmond et al., 2018). Both weaknesses should be corrected in future research.

Conclusions

Using data gathered near the peak of a perceived disease crisis, this study yielded several important findings: (a) Widespread fear of infectious disease is possible, even when the objective level of risk is extremely low; (b) being young, female, and non-White are risk factors for high levels of fear; and (c) media and interpersonal amplification stations are likely complicit in magnifying fear but (d) can also serve to counteract it. Collectively, these observations contribute to our general understanding of public reactions to infectious disease and point the way forward toward interventions designed to mitigate negative emotional reactions.

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Notes

1. Of course, not everyone agrees. For example, Gray and McNaughton (2000) contended that fear is an acute response to immediate danger that can be remedied, whereas anxiety is a response to a future threat that cannot be avoided. Lazarus (1991) differentiated them in terms of physical versus existential threat. However, even inventories designed to measure fear and anxiety as separate constructs find an average correlation of .46 (Sylvers, Lilienfeld, & LaPrairie, 2011). Though it may be useful to distinguish fear and anxiety for certain purposes, we see their difference mostly as a matter of degree.

2. The terminology is regrettable in that stations can amplify or *attenuate* perceptions of risk. Phrasing such as *modulation stations* would more accurately convey what is meant. But, because the phrase *amplification stations* is now embedded into the research literature, we bow to previous usage.

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If Crisis or War Comes: A Study of Risk Communication of Eight European Union Member States

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ABSTRACT

How do European Union (EU) member states communicate risks to their citizens? In this study, we define *risk communication* as the information provided by different levels of government to citizens regarding possible future crises to which the general public might be subjected. We seek to answer the following questions: Are there any patterns in the risk communication strategies among EU member states in terms of the sender of information, the message conveyed, the method used, and the intended audience? Finally, to what extent is the state involved in ensuring the safety of its citizens? To tackle these questions, we examine the risk communication strategy of eight countries: Sweden, Finland, Germany, England, France, Estonia, Greece, and Cyprus. Our data consist of governmental web sites, publications, campaigns, and other modes of communication, such as videos posted on YouTube, with questions centering on institutional actors, methods of delivery, content, and effectiveness. We find that the institutional architecture of risk communication aligns with the broad administrative system of each member state. Countries tend to focus on risks that are specific to their context, with Sweden and, to a lesser extent, Germany having a special focus on consequences and providing guidelines to the public on how to survive for a certain period of time in the absence of the state. Especially in Sweden, though the state is a salient actor in risk communication through the dissemination of information at the agency level, the state retreats while urging the resilient citizen to take control of his or her own crisis management.

KEYWORDS: Risk communication; comparative studies; European politics; resilience; public policy

In May 2018, the Swedish Civil Contingencies Agency (MSB) sent a pamphlet to all 4.7 million Swedish households containing information on how to deal with the consequences of contemporary emergencies, titled *If Crisis or War Comes*. This brochure was an updated version of a series of information sheets from World War II and the Cold War

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era (Dwyer, 2018) and began with a message stating that even though Sweden was safer than many other countries, it faced threats that might jeopardize its security and independence (Myndigheten för samhällsskydd och beredskap, 2018).

Recent events with national repercussions for Sweden include the looming Russian geopolitical threat, the terrorist attack in central Stockholm in April 2017, the forest fires in Västmanland of 2014 (see Öhman, Giritli Nygren, & Olofsson, 2016), and the extensive forest fires in summer 2018. The cultural imagination of realized disasters and many other chimerical ones influences the response to current challenges. The “emergency imaginary” dictates the perception of disasters among professionals (Gregersen & Winkel Holm, n.d.), and in turn, this perception determines what risks professionals communicate to the public and how they do so. More specifically, Calhoun (2008) theorized that framing events as emergencies shapes the way in which we understand aberrant (perhaps) events, such as *inter alia* crises, disasters, and international conflicts, and delineates the range of acceptable actions. The emergency imaginary is a way of conceptualizing problematic events, foregrounding their “unpredictability, abnormality, and brevity” while concomitantly pointing to their attendant corollary: intervention (Calhoun, 2008, p. 375). Calhoun treated the issue of international emergencies and humanitarian intervention, but theoretically, we can scale down and consider problematic events at the micro level and what intervention at the individual level might look like.

Calhoun (2008) also noted that attention must be paid to the ways risks and threats are conceptualized so that we may understand “the social organization of fear” (p. 381), on one hand, and, on the other, how the sense of vulnerability is distributed. This is not a new concept in risk communication research, and in this study, we consider risk communication specifically at the preparedness phase, which

is designed to understand and address the public’s awareness and knowledge gaps related to risk events, to elicit desired preparedness behaviors through identifying and utilizing effective communication channels, to ensure adequate understanding, and to educate about what actions to take when messages are issued. (Sheppard, Janoske, & Liu, 2012, p. 11; see also Leiss, 1996; Lofstedt, 2010)

The empirical impetus for this research was the striking catholic and centralized nature of the aforementioned communiqué issued by the Swedish state. Our study aims at filling the apparent lacuna of cross-country European comparisons when it comes to risk communication at the preparedness phase (see, however, Infanti et al., 2013; Lofstedt, 2010; Tourenq, Boustras, & Gutteling, 2017 for a set of guidelines). From a theoretical perspective, we seek to uncover the architecture (actors, institutions, and the degree of their involvement, message, method, and audience) as part of the risk communication process. In other words, our research question is as follows: How is this imaginary of emergencies in Europe reflected in the content of risk communication messages issued by governmental organizations?

To answer this question, we conducted a comparative study of eight European Union (EU) member states with the objective to map the institutional risk communication structure, the messages that these actors send, how these messages are conveyed, and to whom.

Literature Review

Risk communication as a research area is broad and diversified, including areas such as risk perception, risk and emotions, social construction of risk, media communication, framing, social movements, public engagement, and, not least, crisis communication (Cho, Reimer, & McComas, 2006; Ulmer, Sellnow, & Seeger, 2011). Therefore, whenever we study “risk communication,” we need to define our object of inquiry and thus delimit our investigation. In this article, we investigated national and subnational risk communication and more specifically the way different European countries have designed their risk communication architecture regarding possible future crises where the receiver is the public at large.

Empirically and theoretically focused research has targeted the receivers’ information seeking (Alaszewski, 2005), perception of risk communication tools and messages (Slovic, 1999), trust in communicators (Renn & Levine, 1991), vulnerabilities (Fothergill, Maestas, & Darlington, 1999), and sociocultural contexts (Wardman, 2014). Although such research has produced insight and guidelines regarding these different core aspects of risk communication, relatively few studies

have focused on public policy, particularly in a comparative perspective. Two exceptions are the Organisation for Economic Co-operation and Development (OECD) report *Trends in Risk Communication Policies and Practices* from 2016, which reviewed the risk communication systems of 19 countries, and the 2017 study authored by Tourenq, Boustras, and Gutteling that compared the policy design of Cyprus, France, and the Netherlands (see also Infanti et al.'s 2013 literature review on effective risk communication in Europe). Reflecting the risk communication literature, the OECD (2016) defined six criteria for effective risk communication:

- Consistency across different risk communication tools.
- Two-way communication and interactive approaches.
- Accuracy and trust. Best available knowledge should be used in a transparent way.
- Accessibility of information for citizens, NGOs (non-governmental organizations) and private organizations to seek and use.
- Information adapted to the audience's cognitive capacities, their exposure or vulnerability.
- Cross-sectoral and trans-boundary, reflecting the cross-border, multiple dimensions and possible cascading effects of threats and hazards. (p. 30)

The report illustrates how risk communication systems may be understood and evaluated based on these criteria and the state of the art (e.g., Hampel, 2006; Leiss, 1996; Renn & Levine, 1991; Ulmer et al., 2011). See Table 1.

The conclusions of the report partly indicate that national risk communication needs to be more inclusive and interactive and to focus more on prevention, that is, provide more information about what people can do to mitigate their exposure to risk. Tourenq, Boustras, and Gutteling (2017) argued similarly in a comparative study of Cyprus, France, and the Netherlands. They evaluated available information on the countries' websites based on the assumption that two-way communication enhances individual preparedness and resilience. They found that both France and the Netherlands had interactive communication and that

TABLE 1 Core Elements of a National Risk Communication System

Element	Description
Governance	Who is in charge of risk communication, and what is the institutional structure of risk communication governance?
Considering all hazards and forward thinking	How comprehensive and forward oriented are national risk communication practices?
Purpose of communication and activation of target audience	What is the purpose of countries' risk communication, and how is the target audience involved to effectively communicate risk?
Focus on prevention	How prevention focused are national risk communication practices?
Tapping into innovation	What is the role of innovative technologies in countries' risk communication practices?
Evaluation	What is the effect of risk communication, and how is it being measured?

Note. Based on OECD (2016).

the Netherlands particularly focused on the individual citizen's ability not only to manage but also to prepare for crises. The risk communication of Cyprus, conversely, was exclusively one way, providing expert information for the purpose of "educating people" (Tourenq et al., 2017, p. 547). Arguably, there exist two different assumptions on which risk communication architecture is based: the "educate the public" approach, where citizens are seen as passive and unknowledgeable, and the "resilient citizen" approach, where citizens are not only active and knowledgeable but also seeking responsibility for themselves and the community (see Aradau, 2014).

This leads us to the orientation of this article, which is a critical perspective of risk and risk communication as constituent components of the imaginary of emergencies (Boisseau, Feltey, Flynn, Gelfand, & Triece, 2008; Calhoun, 2008). Risk and its communication create a demand for changes to society and to individuals: Risk may be viewed as a concept intent on exercising power (Wilkinson, 2009). The notion of risk can thus serve as a control technique expressing the interaction

of power relationships (Hannah-Moffat & O'Malley, 2007). This opens up for questions of how notions of risk come to "delimit what it is possible to think and say at a particular time, what purpose does this serve, and to whose benefit?" (Wardman, 2008, p. 1633), or as Calhoun (2008, p. 381) put it, how the conceptualization of risk impacts on the social organization of fear. In some cases, inequalities are (re)produced by modes of governance, including the use of "risk" as a regulatory regime that is shaped by power imbalances (Giritli Nygren, Öhman, & Olofsson, 2017; Montelius & Giritli Nygren, 2014). Risk communication often aims at supporting vulnerable populations, but by making the power dimension of risk communication and its intersection with other lines of power visible, we allow for an analysis of risk communication practices that does not hide the reproduction of existing norms and social inequality.

For this reason, we pay special attention to the issue of representativeness. The audience of risk communication consists of diverse publics, necessitating a certain tailoring of the message to establish trust and collaboration (Janoske, Liu, & Sheppard, 2012). Janoske et al. reported on children, the elderly and disabled, and racial and ethnic minorities. We considered risk communication aimed at transient populations as well as people living in rural areas in our study in an effort to broaden the diversity of publics under consideration.

In summary, there is a paucity of cross-country comparative research examining such issues as risk communication policies, institutional actors, the intended recipient and message content, and even fewer with a critical component. The extant international comparisons, though they provide an important starting point for thinking about risk communication in comparative terms, do not go far enough in addressing the imaginary of emergencies in Europe and nuances among countries under investigation. For example, Tourenq et al. (2017) mentioned factors such as "history, people, management, and lack of funds" (pp. 546–547) but do not go any further. This article adds to the limited knowledge of risk communication at the national and subnational levels (Infanti et al., 2013) but also expands the analysis with a systematic comparison among EU countries. Such comparison has a number of practical implications. Different countries often face not only similar

risks but also risks that stretch over national boundaries. The insight into how countries perceive and communicate risk and prepare for crises has the potential to facilitate coordination in the face of an extraordinary event. A recent example of a European civil protection mobilization took place in summer 2018 when the coordinated effort of eight countries assisted Sweden in battling destructive forest fires (European Commission, 2018).

Research Design, Method, and Data

This is a qualitative systematic comparison aiming at capturing as much variation as possible among EU member states. To fulfill the objective of maximum variation in the cases selected, the logic of comparison is a variation of the “most different systems” logic, which is a logic of systematic cross-country comparison first articulated by Przeworski and Teune (1970; see also Collier, 1993; Meckstroth, 1975). Rather than uncovering causal relationships, the eight-country comparison contrasted contexts to establish a framework for understanding how risk communication processes play out in different ways in each context. This interpretive dimension in social sciences is accommodated within small *N* comparative studies as elaborated in Skocpol and Somers (1980). The authors posited that asking the same or similar analytical questions in contrasting contexts may highlight divergences, making them more transparent—though this is not a causal analysis producing sweeping theory.

To that end, the selection of cases covered the entire geographic gamut of the EU 28. Geography is relevant because it partly (though not exclusively) determines what kind of events might be conceived as threats by each country. Additionally, geography functions as a kind of proxy for the historical contingences idiosyncratic to each country. Traditionally, Greece and Cyprus belong to the European South; France and Germany are in Western Europe (though Germany is sometimes classified as Central) and Sweden and Finland belong to Northern Europe, while Estonia is part of Eastern Europe. The British Isles here are considered a part of Western Europe,¹ though elsewhere they may be classified as a region of their own (Libraries of the University of Minnesota, 2012).

TABLE 2 *Thematic Guide for Data Analysis*

Category	Constituent questions
Institutional actors	<p>What institutional actors are involved in the risk communication process?</p> <p>Are there any nongovernmental organizations involved, and if so, how?</p>
Method	<p>How is the message communicated to the public?</p> <p>Is the communication in any language other than the official language for each country investigated? If that is the case, is the message the same?</p> <p>Are there any provisions to spread the message to subgroups of the population, such as (a) people with disabilities, (b) nonnative speakers (tourists or immigrants), (c) people in elderly care, (d) the homeless.</p> <p>What kinds of media (videos, pictures, text) are used to convey the message?</p>
Content	<p>What kinds of risks and potential crises do the countries under comparison take up?</p> <p>Are there any campaigns (with or without a timeline) geared toward raising public awareness when it comes to crisis preparedness? If so, what do these campaigns look like?</p>
Effectiveness	<p>Have there been any evaluations assessing the effectiveness of the risk communication tools?</p>

Additionally, the countries under examination covered the entire typology range of public administration systems in Europe (Kuhlmann & Wollmann, 2014). This is relevant because risk communication is part of the public administration arrangements of each case in terms of institutions involved, message conveyed, and so on. France and Greece belong to the Continental European Napoleonic model, characterized by a strong centralized government and a powerful centralized bureaucracy, which means that the subnational and local levels are considered to be subordinate. In contrast, in the Continental European Federal model (Germany), the central bureaucracy is weaker, and the subnational, decentralized institutions have more power. In the Scandinavian model (Sweden, Finland), the administrative structure is also highly

decentralized, while the most salient feature of the Anglo-Saxon model (England and, to a certain extent, Cyprus) is new public management decentralized managerial practices (Kuhlmann & Wollmann, 2014). In Estonia, we capture the postcommunist environment with the attendant interventionist state.

Our investigation was conducted on publicly available text and images (still and video) comprising risk communication material at the preparedness phase. Data included information about risks, warnings, self-protection guidelines, and other publications geared toward various publics on outlets (official websites, YouTube channels, and Facebook groups) authored and curated by public entities of, or related to, civil protection or civil defense. We, the authors, have native or near-native linguistic competence as well as country-specific knowledge of the countries we compared. This eliminated any linguistic or cultural misunderstandings and allowed for a nuanced analysis of texts and images. We asked the same questions of the data, thematically arranged and summarized in Table 2. We used these questions to address the core elements of a national risk communication system (see Table 1) and, in turn, unpack the imaginary of emergencies.

Results

In this section, we present the results of the data analysis based on the thematic guide presented in Table 2. The purpose of the analysis is to understand how the imaginary of emergencies (Calhoun, 2008) is reflected in the risk communication practices of the eight selected countries by fleshing out any convergent as well as divergent points among them, structured after the items in Table 1.

Governance Arrangements: Who Is in Charge of Risk Communication?

The degree of the centralization of responsibility for risk communication varies among the countries under comparison, generally along the lines of their administrative system. The institutional risk communication architecture in the Scandinavian countries follows the corporatist model with civil society and the local level being important actors and

builds on collaboration among agencies and municipalities as well as the involvement of private and volunteer sectors. The Swedish Civil Contingencies Agency (MSB), placed under the Ministry of Justice, and the Finnish department for Rescue Services have strategic, coordinating, and supportive responsibilities. More specifically, the Swedish MSB provides information to the public mainly through two websites (<http://www.dinsakerket.se/> and <http://www.krisinformation.se/>), though the websites of county administrative boards and municipalities also convey information to the public. The Finnish Rescue Services are responsible for preventing accidents, providing emergency services, and protecting the population in exceptional circumstances at the regional level and are also responsible for civil defense (Finnish Ministry of the Interior, 2018).

Conversely, France and Greece, in Western and Southern Europe, respectively, follow the continental Napoleonic model, and unsurprisingly, the national government is in charge of what is communicated and how. In France, the General Secretariat for Defense and National Security (SGDSN) in the Ministry of the Interior coordinates the national plans that serve as decision support tools at the national level. The secretariat supports the prime minister and the president in their role as crisis managers and is also responsible for civil defense (Gouvernement Français, 2018a). Similarly, in Greece, civil protection issues are handled by the General Secretariat for Civil Protection established in 1995 and tasked with coordinating risk communication to citizens both in general terms and during exceptional circumstances (Republic of Greece, 2002).

The Estonian Rescue Board, the third largest public service institution in Estonia, is the main actor in risk communication (Päästeamet, 2017), whereas in England, the substance and method of delivery of risk communication are the responsibility of Local Resilience Forums. These are not legal entities but “collaborative mechanisms” that “have a collective responsibility to plan, prepare and communicate in a multi-agency environment” (Cabinet Office, 2013, p. 3). Most of these follow police force boundaries (Garton Grimwood, 2017). The organization with leading responsibilities in emergency management is the Civil Contingencies Secretariat in the Cabinet Office, established in 2001 (Cabinet Office, 2013).

In Germany, the institution responsible for informing the public of risks and potential crises is the German Federal Office of Civil Protection and Disaster Assistance (Bundesamt für Bevölkerungsschutz und Katastrophenhilfe; BBK) under the German Interior Ministry (BMI), which is the highest federal authority. The main purpose of the BBK is to prepare the public for times of crisis; coordinate all the bodies involved before, during, and after a crisis; and provide the physical and psychological support necessary for citizens' well-being (Bundesamt für Bevölkerungsschutz und Katastrophenhilfe [BBK], 2018a, 2018b). Municipalities are active in civil defense (Zivilschutz- und Katastrophenhilfegesetz, 1997/2009, para. 5/1), and they use information available on the BBK website. Additionally, a host of voluntary organizations is actively involved in communicating information to the public.

This is not the case in Cyprus, where for one to be a volunteer, one must be a citizen of the Republic of Cyprus and register by submitting an online form. Strategic policy decisions are made by the General Civil Defense Administration, while there are also five district administrations (Cyprus Ministry of the Interior, 2018a). The Civil Defense Force has the added responsibility to protect citizens in periods of hostilities (Cyprus Ministry of the Interior, 2018b).

Which Hazards Are Communicated, and to What Extent Is the Focus on Prevention?

Greece, Estonia, Cyprus, and France focus on various known risks and hazards—such as earthquakes; inclement weather; landslides; and chemical, biological, radiological, and nuclear (CBRN) threats—with a focus on those threats specific to each country. For example, Greece places a particular emphasis on forest fires, which occur annually and to a certain extent are due to either human error or arson, but there is no mention of the threat of terrorist attack or hostilities. The current geopolitical alignment of Greece and its self-reference as an interstice between East and West may exclude the imaginary of a space for terrorist attacks of the kind similar to those elsewhere in Europe. However, emphasis is put on home fires as, due to the economic crisis, people have started using braziers and burning various materials in their

fireplaces. There is a marked focus on prevention of these well-defined risks (General Secretariat for Civil Protection, 2018).

In Estonia in 2016, a spatial analysis of home fires showed a correlation with socioeconomic factors. In Tallinn, for example, home fires occur more often in residential buildings from the Soviet era, where inhabitants in general are older, have lower income, and live alone and where Estonian is not their first language. In a departure from the other countries under comparison in this study, the Estonian Rescue Board conducts home visits during which they advise residents on how to make their home safer. In 2016, the board carried out more than 17,000 home consultations, covering 2.7% of Estonian households. It also organizes safety awareness days and regular school visits (Päästeamet, 2017).

France covers a broader array of risks with a number of sectoral plans (national and territorial), each corresponding to a previously identified risk or threat. A set of complementary plans, Plan Vigipirate (the Pirate Family), specifically addresses the capacity of the state and relevant stakeholders to deal with terrorist attacks (Gouvernement Français, 2018b). At the national website, there is a specific section on risk prevention (Gouvernement Français, 2018c). Under the slogan “Better prepared, better informed, you will be able to act in case of problems and help your loved ones in the face of an emergency,” video tutorials address a number of risks. The Ministry of Interior Affairs’s website contains a section about personal security (“Ma sécurité”) where citizens can learn how to avoid accidents inside and outside the home with a special section for the elderly (French Ministry of the Interior, 2018).

The Civil Defense Force in Cyprus takes up the same risks as Greece with additional information on what to do in the event of hostile action (the Greek word *ekhthrophraxia* [εχθροπραξία] conveys “act of war” rather than “terrorist attack”), including the case of a bombing campaign by another nation and fires caused by such action. The message is unequivocal: “Self-protection is basically the responsibility of all of us. Take the necessary measures in good time” (Civil Defense Force, 2002, n.p.).

While this quote stems from the threat of invasion in Cyprus, the Greater Manchester Local Resilience Forum has a similar message on

its website: “Whilst we can’t prevent emergencies happening, we can plan ahead to minimise the impact” (Greater Manchester Prepared, 2018, n.p.), admitting that the state is unable to keep the citizenry safe through prevention measures and that safety is the responsibility of the individual. In addition to England, risk communication strategies in Sweden and Germany are characterized by an all-hazards approach that focuses on consequences and the open admission that risks cannot be prevented.

Both Sweden and Germany have incorporated preparedness campaigns in their risk communication strategies, in which the public is urged to have a store of supplies at hand to survive a certain period of time during which a complete disruption of societal functions is imagined, including loss of electricity, water, means of transportation, and any other amenity that one takes for granted in an advanced Western democracy. The German BKK’s website recommends storing enough food and water to survive for at least 2 weeks in the worst-case scenario (BBK, 2017, p.10), though conflicting guidelines from the Ministry of the Interior advising 5 days’ worth of water supplies and 10 days’ worth of food created confusion among the citizens (Bundesministerium des Innern, für Bau und Heimat, 2016).

In Sweden, to raise public awareness, MSB ran a weeklong campaign on May 8, 2017, titled “Upside Down” (Upp och Ner). This was the second such MSB-led campaign, and its target group was women between 45 and 64 years of age. The campaign centered on disruption in electricity supply and focused on the necessities each household ought to have to be able to function during a days-long blackout. This campaign essentially reinforced the earlier message communicated on the websites of Swedish municipalities and county administrative boards: “this is what you need to have at home during a crisis” (*detta behöver du ha hemma vid en kris*).

In Finland, a very different 72-hour campaign mainly consisted of meetings between nongovernmental organization (NGO) representatives and the public. The campaign was partly carried out online, but the main focus was on face-to-face workshops. Apart from the official 72-hour website (<http://www.72tuntia.fi/>), which is available in Finnish, Swedish, and English, several organizations, for example, Suomen

Pelastusalan Keskusjärjestö (the Finnish National Rescue Association; SPEK), also distributed printed information about the 72-hour campaign. Notably, SPEK, which is a national consultancy and service organization for fire and rescue services responsible for training NGO workers, has used MSB YouTube videos in their training material in the Swedish speaking areas of Finland. Whereas the 72-hour campaign is mainly geared toward the urban population, SPEK also maintains a project called “Our Safe Village” that is geared toward small-town preparedness for everyday disruptions and accidents (Suomen Pelastusalan Keskusjärjestö, 2018).

Tap Into Innovation: The Use of Technology in Risk Communication

With the exception of Cyprus, all countries use YouTube to post TV spots and educational films. They also use Facebook and Twitter as information dissemination tools. Sweden, England, France, and Germany have launched smartphone applications varying in scope and interactivity. For example, the French government describes the aims of the app (called SAIP) as follows: “It is part of an approach to develop a culture of vigilance and security of our citizens, initiated with the awareness campaign ‘React in case of terrorist attack’ which gives practical instructions based on: ‘escape, hide, alert’”(Gouvernement Français, 2018d, n.p.).

Conversely, the German app NINA aims at informing the public about current weather situations; national, regional, and local threats; and, in particular, large-scale emergencies (*Großschadenslagen*). The dissemination of local-specific information is limited due to the service availability (BBK, 2018c).

Know Your Impact

It is unclear whether the countries under comparison know the impact of their risk communication strategies. Though the institutional actors involved have the mandate to evaluate (e.g., Republic of Greece, 2002), no evaluations of risk communication strategies are available on governmental websites. Estonia, however, is an exception to this: The Estonian Rescue Board seeks public feedback to measure satisfaction

and trust in the board's operations. Feedback was gathered after rescue events, home consultations, training sessions, safety days, and construction site inspections (Päästeamet, 2017).

Communicate—to Whom?

Most countries convey some information in English, though the English version lacks in depth and detail. The “easy language” versions of the Swedish and German websites are also limited. Where the automated translation function of Google is used, the results can range from confusing to amusing. At the two sides of the continuum are Greece, with information in six professionally translated languages, and Cyprus and England, with information only in Greek and English, respectively.

The image of society that comes across by the risk communication content and techniques is fairly traditional in terms of family structures, households, and people. For example, images of people with obvious disabilities are few and far between.

Generally speaking, spatial images are generic, though the environment is implicitly urban. This is deduced not by what is said but rather by what is left unsaid. For example, there is no information specific to the countryside. Exceptions to these are the “Safe Village” campaign in Finland and the information from the English Local Resilience Forums, because the latter are very localized and the information fits the local context.

Communicate—for What Purpose, and What Is the Role of the Recipient?

All eight EU countries, to various degrees, advise the public on how to prepare, act, and protect themselves and others during events ranging from inclement weather to acts of war by providing specific information on these risks. We did not find any instances of explicitly interactive communication. Even in countries in which there exist smartphone apps, the information seems to be flowing one way. Having said this, the *content* of information seems to activate the recipients: They are urged to have a family contingency plan, to actively protect their homes from fires, and to be vigilant and inform if they see suspicious objects left unattended in public spaces.

As mentioned elsewhere in this article, Sweden and, to a certain extent, Germany have incorporated a specific kind of campaign in their risk communication strategies, a campaign focused on consequences rather than risks that urges the public to have supplies to last them for some time in case of complete societal breakdown due to a mostly unspecified—and largely irrelevant to the substance of the communication—risk. Sweden alone is sending this information in print form to all the households in the country.

This focus on the consequences of an unspecified catastrophic event has had the unforeseen effect of commodifying risk in Sweden. The emphasis on materiality has created a marketplace for the products that the state recommends be in every household storage space, such as canned water.

We argue that this is a case of the citizen being nudged into a perceived resilient state by the admission of the public sector that it will be unavailable at the onset of an unspecified extreme event. Additionally, this is a rather static idea of resilience, as the focus is on the materiality of preparedness rather than social relations and making sure that one's neighbor is safe as well. This discourse echoes the U.S. Federal Emergency Management Agency (FEMA), which shifts the responsibility of emergency management from the federal to the state, local, community, and individual levels (Federal Emergency Management Agency, 2018).

Conclusions and Suggestions for Further Research

The eight countries under comparison cover the gamut of geographies and administrative systems. Moreover, two pairs of countries—Greece and Cyprus and, to a certain extent, Finland and Sweden—share a common language and the culture and heritage that are embedded in language. One would expect similarities in the way the imaginary of emergencies is reflected in the risk communication policies of Greece and Cyprus, both part of the European South but with different administrative systems, but that is not the case. Finland runs a campaign with the same title as Sweden's, shares the same message, and uses material from MSB in their information tool kit in the Swedish-speaking parts of the country. However, the focus is on training volunteer personnel

and not blanket information dissemination to the public. There are also two countries that share a (post)colonial relationship—the United Kingdom and Cyprus. While the United Kingdom and Cyprus share the same administrative system to some extent, a vestige from an earlier colonial relationship, Cyprus is alone in the degree of militarization of civil defense, and the United Kingdom is the foremost country arranging its risk communication structure under the term *resilience*. The factor overriding a common heritage (with Greece) or a common administrative system (with the United Kingdom) is previous experience with an extraordinary event, and Cyprus has had a very recent experience of military action.

The pattern of institutional structures that organizes risk communication in all the countries under investigation aligns with their administrative systems. The institution that deals with risk communication is a variation of a civil protection entity normally under the ministry of the interior, though in the United Kingdom, the central institution is in the Cabinet Office. Incidentally, this is the equivalent of the Swedish Prime Minister's Office, where the Secretariat for Crisis Management was placed when it was first created in Sweden in 2007 (Petridou & Sparf, 2017). Sweden and the United Kingdom use the term *civil contingencies*, whereas Finland, Cyprus, and Estonia use the term *civil defense*. The remaining countries use *civil protection*. There is a marked military component in the Cypriot structure, but perhaps this is unsurprising given that its capital is the only remaining divided capital in the world. There are military echoes in Finland and Estonia as well, which is again perhaps unsurprising given their historical contingencies and recent geopolitical events.

The pattern of central control with decentralized input holds more or less in all countries, including the federal Germany. The U.K. system is very different, however, where the central level has only strategic functions and all the risk communication competencies have been devolved to the regional level in what are called Local Resilience Forums. This makes for a lack of uniformity in information that is communicated to the public, as each resilience forum is region specific. At the same time, the public receives information relevant to them and not a generic version of risk communication. In the other countries under comparison,

information is reproduced at the subnational level from the national website, which can make for a “one-size-fits-all” information packet missing local nuances, such as center–periphery issues. In France, there is a marked fragmentation of information disseminated to the public with several ministries being involved in the process. Notably, this fragmentation is at the national level, as the responsibility for risk communication rests with the national government. Conversely, in Greece, for example, the Civil Contingencies Secretariat informs citizens of risks, including risks that are corollaries of adverse weather, whereas in France, the Ministry of Ecological and Solidarity Transition informs on these risks.

Volunteer organizations are present in all the countries in question, though not to the same degree. This ranges from a controlled registration system in Cyprus to very active involvement in Finland to a separate volunteer organization coordination entity in the United Kingdom. Other than Germany and Finland, in which volunteer organizations provide risk communication, in most of the countries in question, the communication is handled by government at various levels. For example, in Germany, crisis management rests heavily on the engagement of volunteers in local organizations such as fire brigades and rescue services. These local organizations communicate information about risks related to their area of responsibility (e.g., fire) and how to become a member and participate in crisis management.

Websites are the foremost vehicle for communicating information to the public, though in Sweden, France, England, and Germany (notably, in the more economically developed Northern and Western Europe), the national government also employs apps as early warning systems. The authorities also use social media to disseminate information: Facebook, Twitter, and YouTube, though the extent varies among the countries under comparison. In Estonia, the public sector conducts home visits to disseminate self-protection guidelines, a possible vestige of an era of an omnipresent state. The range of state involvement in the amount and scope of information communicated is quite broad, ranging from the aforementioned home visits to rather sparse information from the Civil Defense Force in Cyprus, where the only videos found on YouTube were recordings of military parades.

Notably, the strategic risk communication policy gaze of the United Kingdom and Sweden seems to be fixed westward toward the United States in terms of devolution and a responsibilization of the individual, respectively. Especially in Sweden, though the state is a salient actor in risk communication through the dissemination of information at the agency level, the state retreats while nudging at the resilient citizen, urging him or her to take control of his or her own crisis management.

Finally, the comparison revealed that though there are similarities in the way the imaginary of emergencies (Calhoun, 2008) is reflected in risk communication policies in EU countries, there are also major differences. With the exception of governance arrangements, which follow each country's administrative system, we did not find stable patterns connecting political administrative systems and geography to the risk communication policy of all the countries under consideration. The study, however, allowed us to tease out and showcase factors of risk communication policy by comparing and contrasting across eight European contexts.

Having said this, we argue that more knowledge is needed regarding the effects of campaigns and risk communication activities directed toward the various publics, both in terms of these publics' understanding, knowledge, and preparedness and in terms of possible differences between their diverse resources to respond. Furthermore, there is a need for better understanding of the motives behind the various approaches that different countries apply. Our European comparison shed some light on the national-level processes, but more cross-country comparisons within Europe and beyond are needed to position our results in a global context. In addition to breadth, we also advocate depth. There is a need for comparative field research and interviews with the institutional actors and publics involved in the communication process to understand the construction of the imaginary of emergencies in different national contexts. Finally, it would be beneficial for researchers and policy makers alike to understand the diffusion of risk communication policies and the national environments that ideationally influence the policy process.

Acknowledgement

This study was financed by a grant from the Swedish Civil Contingencies Agency (MSB), contract date October 2, 2017. We would like to thank the anonymous reviewers and our colleagues at the Risk and Crisis Research Center at Mid Sweden University who provided valuable feedback on earlier versions of this article.

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Note

1. For practical reasons, and due to the devolved nature of the United Kingdom, we focused on English Local Resilience forums and did not look at any data in Scotland, Wales, or Northern Ireland. Additionally, all the material for Cyprus refers to actors and processes in the Republic of Cyprus. No information was collected regarding practices in the so-called Turkish Republic of Northern Cyprus, an entity recognized solely by Turkey.

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A Multidimensional Analysis of Stigma: Findings From a Qualitative Study of Fukushima Residents Following Japan's 2011 Nuclear Disaster

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ABSTRACT

This study examines stigma from the perspective of residents of Fukushima prefecture following the 2011 nuclear disaster in Fukushima, Japan, to better understand effective crisis communication strategies that can mitigate the negative effects of self-stigma and promote sustainable psychosocial recovery. Social cognitive theory was employed to explore cognitive, affective, and behavioral changes faced by Fukushima residents in response to the stigma imposed upon them after the disaster. The study result based on in-depth interviews with residents of Shinchimachi, Fukushima, indicates that affectively, participants experienced a remarkable amount of fear and sadness. Cognitively, they focused on concerns about outsiders' negative images or misinformation about Fukushima, changed priorities or values, and self-efficacy. Behaviorally, they actively resisted the stigma while strengthening their connections and belonging to their own community. Additionally, residents felt that they were branded as polluted and contagious and attributed the creation of a Fukushima stigma to a lack of full and accurate information as well as mistrust in main information sources, including media and government. This research suggests that developing a more transparent and locally based communication and information system could mitigate the negative effects of self-stigma. Theoretical implications for future research and policy suggestions for crisis communications are discussed.

KEYWORDS: Great East Japan Earthquake; Fukushima; social cognitive theory; stigma; risk; crisis; communication; media

This research explores perceived stigma of residents in a village in Fukushima, Japan, 5 years after the 2011 Great East Japan Earthquake, tsunami, and nuclear disaster. The tsunami left 15,890 confirmed deaths and a reported 5,000 to 8,000 people missing (Dunbar, McCullough,

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FIGURE 1 A candle inside of bamboo reads 元気でがんばってます安らかに (I am fine and living my life to the fullest. So rest in peace) at an annual memorial in Shinchimachi for victims of the March 2011 disaster (Kwesell, 2013).

Mungov, Varner, & Stroker, 2011; Johnson, 2011; Figure 1).¹ The physical catastrophe—earthquake, tsunami, and radioactive nuclides being released from the Fukushima Daiichi nuclear power plant—overwhelmed Northeast Japan (Blandford & Ahn, 2012; Maeda & Oe, 2015). Radiation prolonged public health concerns and damaged Fukushima's fishing and agriculture economy (Maeda & Oe, 2015). The ongoing disaster extended beyond the physical needs of immediate cleanup, planned reconstruction, and public health prevention processes. Communication breakdowns between the government, the power plant, and mass media caused panic (Maeda & Oe, 2015), while rumors and framed media stories changed the social environment both within and outside of Japan (Ben-Ezra et al., 2015). Bromet (2011) suggested that examining both mental and physical destruction following the nuclear disaster will allow insight into long-term recovery for future disasters.

Fukushima was viewed as radiated, and the land and people within faced stigma (Ben-Ezra et al., 2015). According to a 2012 survey conducted in temporary housing units for tsunami and radiation refugees,



FIGURE 2 A mother stands in front of her “temporary home” holding her youngest child. The family was displaced from nuclear radiation, and they lived in Shinchimachi’s temporary housing for 4 years (Kwesell, 2012).

people felt branded as *polluted* (汚染された) from a *prefecture of radiation* (放射能の県; Kwesell, 2013, 2018). While some studies have examined types of stigmas imposed on residents of Fukushima (Maeda & Oe, 2015; Shigemura, Tanigawa, Saito, & Nomura, 2012), few have focused on how the residents perceived the stigmas imposed on them. Examining perceived stigma and self-stigma of people affected by Japan’s disaster provides an opportunity to better understand the impacts of mass media and interpersonal communication in crisis communication. Reducing miscommunication, confusion, and a media-produced public stigma might lower self-stigma and the long-term negative psychosocial effects that follow (Maeda & Oe, 2017). Crisis management relies on dissemination of accurate information. In Japan’s case, the government and mass media’s failure to inform led to confusion and mistrust, a situation that outlasted the initial disaster (Friedman, 2011).

This research explores perceptions, feelings, thoughts, and behaviors about stigma by Fukushima residents living in proximity to the power plant, including self-derogation, ideas about contamination and

contagion, efficacy, stigma resistance, and the origins of the Fukushima stigma, to better understand psychosocial responses and suggest future crisis communication strategies.

The study site is Shinchimachi, a coastal fishing and agriculture village located in the northeastern corner of Fukushima, 50 km north of the Fukushima Daiichi nuclear power plant. One hundred nine residents out of its 8,030 population died in the tsunami, and many people lost their homes (Shinchi Town, n.d.-a). Some residents left the village after the nuclear explosions, and radiation refugees were relocated there. Figure 2 documents a family who lived in temporary housing in Shinchimachi. While recovery is under way, people still suffer from the fear of the unknown risk of living in Shinchimachi and from the stigma attached to being residents of Fukushima.

Literature Review

Conceptualizing Stigma

Stigma is born when one or more groups label another group with an imagined or invented negative attribute, and as it becomes more well known, it merges into a commonly understood stereotype (Puhl, Schwartz, & Brownell, 2005). Communication naturally spreads the stereotype, and the collective consciousness of one group diverges into two: the group or groups who assign the attribute (the stigmatizing) become self-defined as *normal*, and the group to whom the attribute is assigned (the stigmatized) becomes defined as *abnormal* (Durkheim, 1933). To Link and Phelan (2001), the creation of a stigma is reliant on a co-occurrence of several components (e.g., labeling, stereotyping, separation, status loss, and discrimination) yet only exists when structural power is exercised through government, higher social classes, and media, among others. Mass media's framed stories amplify events and perpetuate ideologies (Gamson & Modigliani, 1989), and the media acts as a "power holder" controlling limited information sources (Ball-Rokeach & De Fleur, 1975; Slovic et al., 1991). The perceptions that are spread become inherent defining characteristics of the group, and what was imagined and created become what is perceived as real (Link & Phelan, 2001).

Though stigma is socially created, over time, even the self-understanding of those who are stigmatized begins to shift. According to Corrigan and Watson (2002), self-stigmatization occurs when people begin to feel the same way as they are described by the stigma, such that “they accept the discredited status as valid” (Steward et al., 2008, p. 3). Self-stigmatization can result in anger, loss of self-esteem, and even a weakening of community resilience (Corrigan, Watson, & Barr, 2006). For example, HIV stigma left people with concerns about disclosure, a negative self-image, worries about the public’s attitude, lower self-esteem, and depression (Berger, Ferrans, & Lashley, 2001; Riggs, Vosvick, & Stallings, 2007).

Bromet (2011) suggested that in Japan, the limited yet ominous historical references to nuclear disaster are inaccurate, confusing, and contradictory, and they connect Fukushima to Hiroshima and Nagasaki. This historical reference inflates already existing fears of nuclear disaster and radioactive nuclide exposure. Historically, atomic bomb survivors in Japan were dehumanized as “other” and contagious (Lifton, 1987), and they continue to face shame, guilt, and alienation (Ishikawa, 1981). Bromet (2011) suggested that the connection to the past is intractable and that mental health effects in Fukushima will thus be lasting.

Social Cognitive Theory: Affective, Cognitive, and Behavioral Dimensions

Bandura’s (1986) social cognitive theory (SCT) suggests that humans act based on their ability to decode what they have vicariously learned. The essence of humanness and society is based on the idea that “cognitive, affective and biological events, behavioral patterns, and environmental events all operate as interacting determinants that influence each other” (Bandura, 2001b, p. 266). Affective dimensions of stigma have been measured in attributes of fear/anxiety, embarrassment, shame or guilt, sadness/depression, shock, irritation or anger, personalization and internalization, and feelings of community belonging (Berger, 1995; Bresnahan & Zhuang, 2016). Cognitive dimensions have been measured in rejection concerns, disclosure concerns, changed priorities or values such as mentally coping, concerns about outsiders’ negative perceptions, internal stigma thoughts and overwhelming ideas,

indifference, self- and collective efficacy, and empowerment (Berger, 1995; Berger et al., 2001; McCombs & Shaw, 1972; Ritsher, Otilingam, & Grajales, 2003). Behavioral dimensions have been measured in social withdrawal, concealing, resisting stigma, seeking or not seeking help, avoiding travel, participating in or experiencing community connections or civic participation, and either witnessing stigma firsthand or hearing about it secondhand from a local person who had witnessed it (Fitzpatrick, 2008; Ritsher et al., 2003).

Vicarious learning: Sources of stigma formation in nuclear crisis. One proposition of SCT is that individuals' identity formation is based on vicarious learning. Individuals learn from interacting, by being part of social groups, and from mass media (Bandura, 1986). In cases of nuclear disaster, vicarious learning becomes more prominent due to the invisible potential danger of radiation as well as a lack of information (Cleary & Houts, 1984). Self-stigmatization via vicarious learning can be formed interpersonally (personal contacts, word of mouth, gossip; Kaiser, 2006), structurally (community norms and institutional policies; Hatzenbuehler, 2014), and through mass media (Slovic et al., 1991).

Gossip can spread conflicting narratives and cause panic (Stadler, 2003), even leading to unsuccessful public health initiatives (Pop, 2016). Socol (2015) suggested that though the Chernobyl nuclear disaster resulted in a low number of radioactive-specific physical ailments, evacuees faced heightened anxiety and increased suicide from "myths about the threat of radiation" (p. 8). Rumors spread fears about birth defects, deaths, and cancers even in neighboring countries (Entman, 1993; Gamson & Modigliani, 1989), and anxiety remained 6–20 years after the disaster (Bromet & Havenaar, 2007). In a study about the 2003 SARS outbreak, Person and colleagues (2004) found that Internet rumors spread inaccurate information and led to fear and apprehensiveness about admitting to illness or seeking treatment. Shigemura and colleagues (2015) suggested that the negative effects of rumors in Fukushima could be mitigated by congruent public health information.

Structural stigma includes discriminatory social policies and community-level attitudes (Hatzenbuehler, 2014), segregated locations for care (Link & Phelan, 2006), and a lack of available social services

(Liegghio, 2017). Hatzenbuehler (2014) found that discriminating social policies influence community attitudes and escalate mental health issues, leading to higher rates of mortality and cardiovascular disease. Schizophrenia treatment centers were found placed in impoverished and unsafe areas (Link & Phelan, 2006). Caregivers for youth with mental illness voiced struggles with social services' fragmentation, including education systems, child protective services, and criminal justice (Liegghio, 2017).

Mass media's powerful role is a central pillar to the creation of stigma (Bandura, 2001a). In the 1980 Mt. St. Helens disaster, mass media was the first-sought information source to resolve ambiguity during crisis (Hirschburg, Dillman, & Ball-Rokeach, 1986). Media's framing determines the way in which the public views a crisis and can alter the sense of self that survivors experience (Coombs, 2007). Perko (2011) suggested that the media in Fukushima should have addressed the specific hazard, immediate emergency instructions, and postdisaster instructions to mitigate negative outcomes, yet stories were embellished because reporters and editors had to fill budget lines and expand readership.

Research Questions

Based on SCT and prior literature, this study proposes the following two research questions:

RQ1: How are affective, cognitive, and behavioral dimensions proposed by social cognitive theory reflected in Shinchimachi residents' perceptions of stigma?

RQ2: What interpersonal, media, and governmental sources are likely to have influenced Shinchimachi residents' perceptions of stigma?

Research Method

Research Procedure and Participants

This research is based on 12 in-depth interviews with residents of Shinchimachi. Participants were found through snowball sampling. All were directly affected by the earthquake, tsunami, and nuclear

fallout. Eight were tsunami refugees who lived in temporary housing for 4 years, and one was a radiation refugee evacuated from her home to Shinchimachi. Their ages ranged from 24 to 80 years, with an average age of 59 years, which reflects the aging society of Shinchimachi, where the average age of residents is 48 years old (Shinchi Town, n.d.-b).

Interview questions were created in English and then translated into Japanese by a bilingual native Japanese speaker and linguistics professor. Particular attention was paid to avoiding directly asking sensitive or painful questions about experiences during and after the disaster. Interviews were conducted in Japanese, transcribed, and then translated into English by a team of five bilingual native Japanese translators and rechecked by the two most experienced translators. Each interview lasted between 50 and 120 minutes.

Around the eighth interview, answers started to become redundant. Instead of claiming saturation, the interviewers employed grounded theory research suggestions by Charmaz (2006) and Corbin and Strauss (2008), who recommended that after saturation is found, interviews go more in depth to unearth nuances that bring about new data. Thus the researchers began to ask more detailed questions, furthered clarifications, and allowed more time for new data to emerge in finer points.

Interview Questions and Data Analysis

Interview themes and questions were derived from the literature review. Examples of questions include the following:

- How do you think Fukushima people's lives changed after 3.11 (March 11, 2011)?
- Did you feel differently after 3.11 because you are from Fukushima? If yes, how?
- How do you think Fukushima was represented in the news right after 3.11?

Data analysis was based on both theoretical and grounded approaches. An overall framework of affective, cognitive, and behavioral dimensions based on SCT (Bandura, 1986) was set a priori. However, establishing

an a priori coding scheme was not feasible because of the insufficient number of past studies concerning perceived stigma and communication in crisis settings, especially following a nuclear disaster. A two-stage coding process based on a grounded approach was thus employed. First, the authors engaged in a thematic analysis of the data, deriving subthemes within each of the affective, cognitive, and behavioral dimensions. To ensure the validity of the subthemes, two graduate students were hired to revisit the data by coding available themes derived by the authors. The coders and the authors had several meetings to resolve disagreements, and the subthemes were updated with a clearer operationalization of concepts.

Results

Affective, Cognitive, and Behavioral Dimensions of Perceived Stigma (RQ1)

With regard to the categorization of participants' perceptions of stigma, certain prominent themes arose. Affectively, participants discussed experiencing a remarkable amount of fear and sadness. Cognitively, they focused on concerns about outsiders' negative images or misinformation about Fukushima, changed priorities or values, and self-efficacy. Behaviorally, participants expressed actively resisting stigma, having increased community connections, and experiencing or hearing about enacted stigma.

Affective. The affective dimensions derived from prior theory were all mentioned, except for embarrassment and shock. The most outstanding affective dimension was *fear/anxiety*. Every participant expressed fear, with the subject mentioned on 48 different occasions. Seven participants expressed fear for the health and future of children, while fear about children eating local food or drinking water, playing in the soil, or swimming in the ocean, and fears for their future, were widely acknowledged. Figure 3 illustrates a summer festival where children cannot help but get muddy. One father expressed,

Even if we the adults ate it, I didn't want to feed the children those crops. . . . I had anxiety. Anxiety for the future of my children. My



FIGURE 3 Children play water games on a rainy day during Shinchimachi's summer festival, which attracts residents of villages along the Fukushima coastline. Before the festival, the park had its top layer of grass and dirt removed in an attempt to lower the ground radiation (Kwesell, 2013).

children also got the checkups but I am always worried, what if that result was not accurate?

Seven participants specifically mentioned fear/anxiety about food safety. Responses covered damaged industry, for example, one participant shared that “for the fishermen and vegetable shop owners. They may not be able to sell their goods.” The apple farmer said that he considered leaving Fukushima to start over because people would assume that because he was in Fukushima, his apples would have high levels of radiation. Even if he checked and they did not, people might not trust their safety. Many participants decided to check radiation levels for food they had personally grown at the town hall.

In addition to fear/anxiety about children and food was a general fear of invisible, unknown aspects of radiation. One 80-year-old participant said, “I am a farmer and radiation is something that can't be seen.” Participants expressed a continued fear stemming from a general feeling



FIGURE 4 A child plays with a radiation counter in Shinchimachi's largest park. Public parks, open areas, and school playgrounds all have radiation counters after the nuclear disaster (Kwesell, 2012).

of “uncertainty” and this led to felt ailments or somatic symptoms. As demonstrated in Figure 4, they are constantly reminded of the higher levels of radiation as the village is dotted with radiation counters. One participant mentioned, “I don’t know. About the radiation. About the nuclear disaster. When I feel a little ill, my mind immediately goes on thinking that it is because of radiation.”

The second most often mentioned affective dimension was *sadness/depression*, which was mentioned by 8 participants a total of 20 times by expressing sadness, depression, or a feeling of separation and rejection. Participants said, “So sad that we have come to such a level” and “I was hurt just hearing about it.” One radiation evacuee said that her family all used to live together yet are now split across four places in three different prefectures. For her, depression lasted about 1–2 years, and sadness stemmed from a mixture of feeling alone and seeing negative Internet comments, which she characterized as “painful.” One grandmother expressed a deep sadness of “rejection” when her children stopped

accepting homegrown food she sent. Sadness also stemmed from the very dichotomy of living in a place surrounded by nature yet fearing it. Another participant shared, “[My children] have never gone to the sea. They pass by it in the car but haven’t gone to the beach. We live in a place where the nature surrounds us—both the mountain and the sea. But it is so sad they can’t go to the ocean.” A few participants also expressed *anger* about outsiders’ views of Fukushima, yet, despite the many difficult affective responses elicited from interviews, feelings of *community support* were also expressed. One participant noted that he felt a sense of peace: “because I have all my family and friends and the community, I am okay.”

Cognitive. All of the cognitive dimensions discussed in literature were mentioned by participants, while the most outstanding was *concerns about outsiders’ negative image or misinformation about Fukushima*, expressed by all participants a total of 73 times. They communicated that everything related to Fukushima after the nuclear accident is now grouped together into one long-lasting negative image. One participant said that the first impression is “engraved in people’s minds” and will thus “continue.” They expressed being disliked and avoided, and one noted that tourists no longer want to visit the prefecture. The Fukushima stigma was expressed as a misunderstanding. One participant shared, “It’s almost as though people think you get cancer from just hearing the term *Fukushima*.” Eight people thought that others might think it is hard for Fukushima women to get married or have healthy children. In addition, respondents mentioned the historical reference from the aftermath of the atomic bombing and people’s resulting negative attitudes toward women, marriage, and the ability to bear healthy children.

Eight people mentioned that others assume Fukushima prefecture and its people, objects, and food are contagious. Some reported their cars being vandalized, while others were asked if their cars were contagious. Two participants shared that Fukushima children who went to school in another prefecture after the disaster were called “dirty.”

The second most often mentioned cognitive dimension was *changed priorities and values*. Ten participants expressed such changes a total of 33 times. One participant noted,

When I was doing dead body searches and finding bodies every day . . . I felt, there is a reason that I am alive today. I need to do something for the community . . . living with a purpose. . . . So before, my priority was the business, but now . . . I want to contribute to making Shinchimachi a better place for all.

Others expressed that family time and bonding had become essential priorities. One participant noted, "Now, if we can go through a day peacefully, then I am happy. If I can spend a good time with my grandchildren, I am happy. . . . I just want to live peacefully with my husband."

Nine participants expressed *self-efficacy* and six expressed *collective efficacy*. The apple farmer is now experimenting with a new technique to grow tastier apples more efficiently. Before the disaster, he did not have much of a plan to expand, and for 2 years after, he felt overwhelmed and stuck. Then he slowly regained footing and started having new ideas and dreams. Several participants expressed future thinking by continually thinking about participating in rebuilding the village. Participants experienced a desire to support one another, join together to fight against stigma, and share a fuller story of Fukushima, illustrating that residents continue "carrying on with their li[ves]." In addition, they spoke about a desire to share what they called a real or more inclusive story of Fukushima rather than the partial or negative story shared by the mass media. One participant noted, "So although we are victims, we still have power and energy to do something more for the community. Not just asking for help from outside but helping ourselves."

Behavioral. The most outstanding behavioral dimension was *actively resisting stigma*, expressed by all participants on 19 occasions. Eight mentioned verbally claiming they are from Fukushima as "honest fact." One said, "I would say that I am from Fukushima with confidence and pride." Another shared, "I was born here and there is nothing to hide from it." Four participants mentioned actively working to change Fukushima's negative image and experiencing some frustrations doing so. One shared, "This part of Fukushima, radiation levels only reached to this level, so it is not a problem. Although we try to spread this fact ourselves, it seems that the public is unwilling to accept."

The second most salient behavioral dimension was *community support and involvement*, mentioned by 8 participants, and *witnessing enacted stigma*, mentioned by 11. One participant said her husband postponed his retirement as the community needed electricians. The apple farmer noted that while he lost outside clients, his community kept buying apples. One business owner transformed his life by starting a nonprofit organization that supports victims of the disaster, children, and elders in the community.

Eleven participants had either witnessed *enacted stigma* directly or heard about it happening both outside and within the prefecture. One participant shared, "Children get bullied at school for being from Fukushima . . . even within Fukushima." Cars were mentioned being damaged, "wretched and scratched because they had a Fukushima number plate." People who fled their homes were shown that they were unwelcome in the new place. One participant shared, "Even within Fukushima, when a family moved to Iwaki from the evacuation area and went around to greet their new neighbors, gifts that they had given were returned to their doorstep the next day because of where they were from."

Participants also expressed *social withdrawal* and *concealing* being from Fukushima. Family friendships were broken and contact lost with people who fled Fukushima, and one person mentioned that she had stopped sending gifts to family outside because the gifts did not feel welcome. One said that it was too exhausting to tell foreigners where he was from: "When I go abroad I say I am from Sendai, Japan. I went to America, China, a lot of places, but never say Fukushima because people will react to Fukushima—even foreigners."

Perceived Sources of Stigma (RQ2)

With regard to perceived sources of stigma, all research participants mentioned the media in general terms, and some mentioned specific forms of media, such as television, Internet, and newspapers. In addition, they mentioned the Japanese government, Tokyo Electric Power Company (TEPCO), and interpersonal contacts/rumors as sources.

The most dominant perceived source of stigma mentioned was the

general term *media* by all participants 70 times, while most did not report the *kind* of media. They expressed that the media did not show the full story, mistold the story, or lied. The media was criticized for deceiving and for lacking information. One participant claimed to “only believe what I see with my own eyes.”

Three participants suggested that the media only shares choice elements to create “tears” or “entertain.” Two specifically mentioned that a story is written and published despite fact-based knowledge. To one participant, the media’s portrayals bring mistrust: “When I see such newspapers and magazines, the first thing I feel is anger. I can’t trust these.”

Television, newspaper, and online sources. Six participants mentioned television as a specific source of stigma. One spoke of reports of victims of the 2016 Kumamoto, Japan, earthquake refusing donations from Fukushima: “There are some who would accept, but even now, there are some people who see us like that. I learned that from watching the TV.” Four participants mentioned newspapers (either online or offline) as a source of stigma. One said that a local newspaper reported only on radiation fallout and failed cleanup attempts: “They only say negative things. I wish that they would say more about what should be done construction-wise or portray it in a way that makes us more hopeful.” Three participants specifically blamed online sources for contagion rumor. One participant noted, “I have seen on the Internet and media, things like radiation is contagious so you shouldn’t go near them.”

Government and TEPCO. Seven participants mentioned the Japanese government as a source of stigma, and four mentioned TEPCO. One mentioned that people only accept news as fact and that news comes from sources of structural power. One said that he “feels foolish” for believing the government and TEPCO. The media’s immediate disaster report put one participant’s family in danger: “We fled to Shirakawa. But in reality, it turned out that the radiation level was higher than that of Shinchimachi. We lacked information back then.”

Interpersonal contacts and rumors. Five participants mentioned the cause of stigma to be *interpersonal contacts and rumors*. They noted that while the media created and shared the story, influences lay equally in the minds of media audiences and the meanings they derived:

I don't think it's the media's fault. . . . I think people exaggerated how they processed the information, automatically making things worse in their heads—that the condition of the nuclear reactors is worse than what is told, that all of Fukushima is now not functioning, that every part of Fukushima has been contaminated.

Participants seemed to differentiate between physical damage by the earthquake, tsunami, or forced evacuation and damage created by rumors, which “hurt in nonvisible ways. . . . Most people, they take in the information just as it is delivered. That leads to rumors and stereotypes.” In addition, some participants mentioned the feeling that the rest of Japan had them under a microscope, as if they were interested in the lives of Fukushima people “like rats in a science experiment.”

Overall, participants expressed wanting more transparency: for the media, government, and TEPCO to share truth and for news not to be swayed in an overly positive or negative way. They wanted victims' personal stories shared as well as facts that could offer them a chance to make their own informed decisions about safety.

Discussion

Summary and Implications of the Results

The stigma perceived by the participants in Shinchimachi reveals their newly emerged identity in relation to the rest of Japan as a prefecture of radiation. Affectively, they felt anxious and sad about the new circumstances that suddenly emerged out of their control. Cognitively, they were highly concerned about negative views about Fukushima among “outsiders.” Behaviorally, they actively resisted the stigma while strengthening their connections and belonging to their own community.

One important finding in this study is that while stigma has negative connotations, participants did not all exhibit negative effects from stigma. Similar to what Goffman (1963) proposed, people think through stigmas following an initial emotional reaction and experience varying degrees of efficacy. As noted in several past studies (Link & Phelan, 2001; Southall, Gagné, & Jennings, 2010; Steward et al., 2008), stigma causes people to rethink values, priorities, goals and dreams and even

encourages them to become more involved in the conception of a desired future. Shinchimachi was perceived to be stronger as people supported one another and actively strengthened ties to resist stigma. The village's reputation was likely damaged as a part of Fukushima, and physical dangers remain ambiguous. Despite this, self- and collective efficacy were expressed even 5 years after the disaster.

The willingness to resist the Fukushima stigma may enable participants to speak out more actively about needed policy change to keep them safe both physically and socially. If there were better communication channels through which residents of affected areas could express their thoughts and feelings within and outside of their communities, more accurate information could be conveyed and shared. Results concerning sources of stigma formation offer valuable implications for people's dependency on the mass media and interpersonal contacts in disaster situations. Although the mass media has been previously proven as the main source of information in ambiguous times (Ball-Rokeach, 1985, 1998; Hirschburg et al., 1986), some participants expressed such a high level of mistrust in the media that they relied on interpersonal communication for information. Consistent with the media framing literature (Entman, 1993; Gamson & Modigliani, 1989; Goffman, 1974), participants found that stories mostly followed precreated dramatized frames, from which they felt stigma originated. They mentioned that journalists arrived on scene with stories that had already been written and were mostly looking to find quotes to match their angles (Durkheim, 1933; Puhl et al., 2005). Results indicate that people's dependency on different types of information sources in disaster situations is likely to be influenced by their trust in the framing of stories in the mass media. Future studies can further reveal the relationship between dependency on media in disaster situations and the effects of framed content.

The most salient stigma attributes expressed were fear and, interestingly, a desire to resist stigma. Past studies have found that the stigmatizers can have fear toward people with a diagnosed ailment (Berger, 1995; Berger et al., 2001). In a different angle, fear and anxiety from the stigmatized likely stem from lack of information (Rubin, 1987). The present study offers new data that sheds light on a more illusive sense of fear. The participants feared their current situation and future because of

radiation, which they cannot see and the physiological effects of which they do not fully understand. But they also felt that other people feared those who were exposed. These fears could not be tangibly defined because of radiation's elusive characteristic, and there is no direct situation to which they can be compared. This phenomenon of fears created by the multifaceted layers of stigma and self-stigma effects builds on more direct stigma-induced fear research (Zhuang et al., 2016). Based on Rubin's (1987) findings, one way to alleviate fear is to offer victims full information. In the case of future crises, information structures and dispersal networks could help alleviate fears in unforeseen and overwhelming situations. The interplay of fear and the resistance of stigma is worth further exploration.

Suggestions for Future Crisis Communications

We make three suggestions for future crisis communication strategies based on our findings. Stigma takes place when information is lacking and rumors begin to spread (Flynn, Slovic, & Kunreuther, 2001; Goffman, 1963). Open and clear communication about risk and public health issues can mitigate the long-term negative effects of self-stigma (Maeda & Oe, 2017). First, a multichannel flow of information would minimize the spread of inaccurate rumors and allow more options for vicarious learning beyond the mass media-centric story. Special attention would be needed to make information accessible to all individuals in the at-risk population. In an aging community like Shinchimachi, many of the elders might not have access to the Internet or use social media. The present research indicates that interpersonal channels and the local media play an important role in crisis communication. Future research can examine effective and accessible means of information dispersal in immediate disaster response and reconstruction phases engaging all forms of mainstream, local, and social media and a more structured response including small groups and face-to-face information dispersal. Many interviewees expressed confusion owing to a lack of information on the health effects of radiation. Rather than not communicating information because of an inability to agree on facts, multiple perspectives about disaster and risks entailed should be presented so that people can make informed and rational decisions.

Second, disaster response and communication strategies should include ways for residents to talk openly about their difficulties, uncertainties, and frustrations. Several interviewees mentioned the frustration of not being able confide in others about what they experienced due to the stigma and sensitivity of the disaster. In the immediate aftermath of a disaster, informal group conversation can be carried out at evacuation shelters with community leaders spreading information and encouraging open discussion. With respect to a more long-term aftermath, therapeutic interventions can include more formal discussion groups. This would allow victims to share information in a safe space, voice anxieties and concerns, and come to some agreement on strategies moving forward.

Third, crisis communication experts should put immediate focus on local media and encourage them to take on active roles to overcome negative effects by mainstream media's framed stories. Local media should provide focused information on the local area and publish more stories and voices from local citizens. Print, television, and radio, in addition to the Internet, could help disperse information to diverse groups of people. Local media can offer vital information and likely lessen the long-term effects of self-stigma.

Limitations and Future Research

The limitations of our study should be mentioned. This qualitative study focused on understanding stigma from the perspective of crisis survivors and, thus, did not attempt to generalize findings to all Fukushima survivors. Findings from this study could help develop scales for future survey research on stigmatized disaster survivors.

Shinchimachi is an aging community, and new generations often move to cities for university, while few young people return. The participants' age range reflected this trend to an extent yet was still too heavily weighted toward elderly people and would benefit from more inquiry with younger generations. Future research with a larger capacity in a wider area of Fukushima prefecture would offer more insight into the more general stigma perceived by Fukushima residents.

Despite these limitations, this study makes an important contribution to the field of crisis communication by uncovering multiple

dimensions of stigma perceived by Fukushima residents and how the residents are coping with the imposed stigma. The study lays a basis for future research on stigma, disaster, crisis communication, and recovery. The study also suggests that researchers in this field should be aware of the challenges of accessing the sensitive research population. Many residents of Fukushima were hesitant to participate in disaster-related interviews with researchers from outside of Fukushima in ongoing circumstances of having to cope with psychological trauma in a stigmatized place and with unknowns of future radiation-related health issues. These challenges make further research with this type of population both challenging and valuable.

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Note

1. The first author, Allison Kwezell, is a photojournalist and has been documenting the lives of the people of Fukushima since 2011. Several of her photographs are included as figures.

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Social Media Posts on the Samsung Galaxy Note 7 Explosion: A Comparative Analysis of Crisis Framing and Sentiment in Three Nations

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ABSTRACT

This study explores the Samsung Galaxy Note 7 explosion crisis by analyzing posts on Twitter in three nations: the United States, Australia, and South Korea. Using the perspectives of generic frames, issue-specific frames, cross-national frames, and user sentiment on Twitter, this study analyzes 600 posts (200 from each nation). Results reveal that Twitter posts frequently framed the crisis using attribution, morality, and conflict frames. Posts about the explosion were more professional frame oriented than national frame oriented. Negative sentiment was dominant in Twitter posts about the explosion. Morality, corporate breakdown, and customer concerns were highly associated with negative sentiment. The results demonstrate how global users respond to a corporate crisis. Study implications and suggestions are discussed.

KEYWORDS: Samsung Galaxy Note 7 explosion; crisis framing; social media sentiment

A corporate crisis shapes the reputation of the corporation affected, public opinion regarding the corporation, and the economy of the nation where the crisis occurs (An & Gower, 2009). Media coverage of a corporate crisis can influence corporations, governments, and stakeholders to a substantial degree. A crisis is a stage of an event at which future events can be better or worse. Such future events unfold depending on the causes, attributions, and solutions of the crisis (Coombs & Holladay, 2004). As such, how the public views a crisis is an important factor in determining the fate of involved organizations.

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In communication research, an indispensable step toward identifying the effects of a corporate crisis is to examine how the crisis is framed in media because how media frame a corporate crisis facilitates or deteriorates publics' attitudes and behaviors toward the corporation (Coombs, 2006; Valentini & Romenti, 2011).

In recent years, media message production and distribution have transformed in an interactive way (Hindman, 2009). Audiences readily engage with people by sharing, endorsing, or opposing posts on social media. Audiences offer opinions on issues in interactive news platforms (Diehl, Weeks, & Gil de Zúñiga, 2016). Furthermore, as J. Kim, Brossard, Scheufele, and Xenos (2016) also discussed, the sentiment shared on social media about a crisis influences how audiences perceive the issue. Given the increasing impact of social media posts on users regarding active internalizing (viewing) and externalizing (sharing or retweeting; Diehl et al., 2016), it is crucial to investigate how message frames relate to audience sentiment, which can form public opinion.

Crisis information is disseminated faster on social media than other news channels due to users' direct posts on sites, virality, and global reach, which make the crisis's impact powerful (van der Meer & Verhoeven, 2013). When a massive earthquake and tsunami caused a nuclear accident in Japan in 2011, one particular article about the crisis was the most shared story on Facebook that year (Facebook, 2011). For this reason, researchers are concerned with how issues, frames, opinions, and sentiment on social media influence public perceptions of a crisis at an international level (Hajdu, Pápay, Szántó, & Tóth, 2018). Even though several researchers have focused on social media content related to crises (e.g., Ceron, 2015; J. Kim et al., 2016) and users' issue-sharing intentions (Khuntia, Sun, & Yim, 2016), scant research has been conducted on corporate crisis framing and on relating framing to sentiment in an international context. Hence, using a recent global corporate crisis as a case, this study seeks to (a) track which frames frequently occurred in social media posts; (b) explore online sentiment toward the brand, product, and crisis; and (c) demonstrate the relationship between message frames and audience sentiment.

The current study conducted a social media content analysis of the Samsung Galaxy Note 7 explosion crisis, which caused serious safety

concerns (e.g., possible explosion in an airplane that can affect safety) and public fear (Ferreras, 2016; McGregor, 2016). This crisis received national and international attention because of the product's almost ubiquitous penetration across the world ("Worldwide Smartphone Sales," 2016). A global corporate crisis can, however, cause a falsely assumed universality of the issue if the crisis is examined only in one nation (Dogan & Pelassy, 1984) because international crisis news has been known to have ethnocentric biases in terms of both events and geographic focus (de Vreese, Peter, & Semetko, 2001). However, examining social media posts on a crisis in multiple nations offers a way to identify how the crisis is framed depending on national backgrounds (Swanson, 2000). To ensure a comprehensive observation and assessment, this study explores the Samsung crisis by analyzing posts on social media in three different nations: the United States, Australia, and South Korea. The three nations are chosen because they represented the highest smartphone penetration rates in the world at the time of the incident (McPhillips, 2016). South Korea and the United States manufactured the top three smartphones sold in the world: the Samsung Galaxy S7 (South Korea), the Apple iPhone 7 (United States), and the LG G5 (South Korea; Triggs, 2016). Australia was the nation where Samsung Galaxy had the largest market share, followed by South Korea (Nino, 2017). Identifying social media post frames and comparing them with user sentiment in these nations can provide clues for effective public relations (PR) strategies, corporate reputation recovery, and negative affect reduction.

Crisis Framing and Cross-National Communication

When a crisis is framed, certain aspects of the crisis are reemphasized as salient attributes. This slanted coverage affects how audiences perceive, organize, and interpret events and issues (de Vreese et al., 2001; Entman, 1993). Frames in media refer to the central idea of organizing and providing meaning to a selection of attributes by selection, presentation, and exclusion (Nelson, Clawson, & Oxley, 1997). In other words, to frame is to select, organize, and define certain themes and aspects of reality and to emphasize events, issues, and actors of the agenda

to make them prominent (Entman, 2004). For example, the Chinese news media framed recalled Chinese products as “unavoidable” and “exaggerated Western media,” whereas the U.S. news media framed them as “worrisome” or from a “broken system” (Hong, 2013, p. 86).

In crisis communication, frames can shape the public’s attribution of crisis responsibility to organizations, governments, and stakeholders. Crisis frames can influence the public’s reputation perception, sentiment, behavioral intention toward the organization in crisis, and the organization’s rebuild strategy (Coombs, 2007). Media play a central role in this process because the way a crisis is framed can shape the attributes of the crisis. Media select which issues to report in organizations’ crisis responses, such as cause and responsibility, frames that influence audience sentiment (Coombs, 2006).

Framing can be labeled on varying levels and applications in the international context. The levels in framing are generic frames, issue-specific frames, and cross-national frames (de Vreese, 2005). *Generic frames* represent a broad range of aspects of a topic in different cultural contexts (de Vreese et al., 2001; Guo, Holton, & Jeong, 2012) and provide a common analytical framework in terms of strategic aspects of the agenda (Cappella & Jamieson, 1997). *Issue-specific frames*, on the other hand, pertain to detailed categories of an event (de Vreese, 2005) and present different issues from event to event. Issue-specific frames, hence, anatomize an event and enable the audience to understand the event in fine detail. *Cross-national frames* concern identities embedded in international issue coverage. In the cross-national comparative framing model, Guo et al. (2012) stated that media coverage is affected by culture, national identity, and/or politically driven frames. Different nations may use distinct frames to cover identical issues.

Generic Frames

Generic frames are used in analyses about crises to explain commonly categorized frames occurring in an agenda (An & Gower, 2009). In this view, generic frames are defined as frames that are universally applicable to an agenda. Neuman, Just, and Crigler (1992) categorized types of frames dominant in the U.S. news media into four categories: conflict, economic consequences, human impact, and morality.

Semetko and Valkenburg (2000) added attribution of responsibility to these four frames in accounting for crises. These five news frames are a generalization of crises, which can be applied to different nations (de Vreese et al., 2001).

Conflict frames in the media emphasize disagreement among individuals, groups, or organizations in the crisis as a means of capturing audience interest. An and Gower (2009) found that over 64% of analyzed news contained conflict frames. For example, U.S. newspapers framed the Fukushima nuclear power plant crisis as a conflict that could induce audience cynicism (Lazic & Kaigo, 2013). Economic consequence frames report a crisis event in terms of the impact the crisis will have economically on individuals, groups, organizations, and nations (An & Gower, 2009; Neuman et al., 1992). Economic frames are considered important because the consequences of the frames can affect the market and the nation.

Human interest frames emphasize psychological and emotional angles in a crisis (Semetko & Valkenburg, 2000). Media are likely to cover feelings of outrage, empathy, sympathy, or compassion to capture and retain audience interest. Nabi (2002) discovered that different versions of news stories on domestic terrorism—each of which was designed to elicit anger and fear—induced different emotions from study participants. H. J. Kim and Cameron (2011) experimented with consumer responses to a cell phone battery explosion accident. In their study, sadness-inducing news predicted a positive attitude toward the corporation.

Morality frames look at a crisis in the context of religious or moral prescriptions (Neuman et al., 1992). Media coverage includes moral judgments such that a crisis is portrayed as preventable or unavoidable indirectly through quotations or inference. The morality frame concerns news coverage of any ethical action the entity takes to resolve the crisis.

Responsibility attribution frames suggest that news attributes responsibility for a crisis to either individual (episodic) or society (thematic; Iyengar, 1991). According to attribution theory (B. Weiner, 1993), people attribute causes of issues to behaviors. Responsibility attribution depends on the nature of a problem. Individual responsibility pertains to an emphasis on the cause of a problem (e.g., personal), whereas social

responsibility focuses on the people who have the power to control the problem (e.g., a government, a corporation; Kang, 2013).

Issue-Specific Frames

Issue-specific frames investigate events in customized specificity because each event consists of a different list of issues. Anchoring ideas frame an event and become socially represented. In this process, some issues are neglected, and some are emphasized (Flick, 1998). Issue-specific frames can be explained as anchoring. Anchoring is the process of reducing and transforming unfamiliar ideas into categories and images (Schmitz, Filippone, & Edelman, 2003). Through the anchoring process, certain issues are woven into the acceptable knowledge of audiences. Therefore knowing issues in one's own views can determine the way in which the audience perceives and understands issues.

Crisis topics such as U.S. national budget deficits (Jasperson, Shah, Watts, Faber, & Fan, 1998), international airline accidents (Entman, 1991), or the Gulf War (Reese & Buckalew, 1995) contain unique issues. In their study on the news media coverage of Alitalia's crisis, Valentini and Romenti (2011) found that the domestic press's top four issues were the financial situation, investor relations, government management, and employee relations. The international press's top four issues were investor relations, the financial situation, government management, and labor union relations (Valentini & Romenti, 2011). Hong (2013) discovered that the news media covered issues of product quality, customer concern, and a systemic breakdown in the corporate crisis of recalled Chinese products. When a crisis is involved with a product or a service of a corporation, news issues cover a variety of issues, including the recall, side effects, scientific research evidence, complaints, lawsuits, the investigation, prevention, the crisis cause, and potential crisis solutions (D. Weiner, 2006).

Cross-National Frames

Characteristics of media organizations can affect media frames (Shoe-maker & Reese, 1996). Some media organizations are conservative or liberal (Cooper, 2002; Entman, 2010; Snow & Benford, 1992). The political ideology of media organizations can affect framing (Scheufele,

1999). In the process of framing, media organizations interpret social issues differently depending on their political motivations or economic needs (Simon & Xenos, 2000).

At the macrolevel, the frames of ethnocentrism, nationalism, and professionalism influence the objectivity of coverage (Gans, 1979; Garyantes & Murphy, 2010). The national frame refers mainly to the domestication and localization of news stories for national interest (Nossek, 2004). For example, economic issues are more heavily influenced by national interests because monetary profits are directly involved (Graber, 1993; Neuman et al., 1992). Cultural differences, ideologies, nationalism, norms, values, routines, physical distance, and business interest can influence media coverage (Garyantes & Murphy, 2010; Shoemaker & Reese 1996). Media organizations may apply the national frame to economic or corporate crises (Shoemaker & Reese, 1996). The national frame and national interest frame served as a driving force of crisis coverage in Asia and Europe (Mao, 2014), which became a reconstructing factor of reality in general.

Meanwhile, the professional frame accounts for a fact-based news report rather than news framed with a slant (Nossek, 2004). When journalists (both professionals and citizens) report international crisis news, they tend to frame it as either “ours” or “theirs.” After that, the professional frame (theirs) becomes subordinate to the national frame (our crisis; Nossek, 2004).

Studies have found evidence of cultural filtering in foreign event coverage, indicating that media organizations apply the “our” (national) frame rather than the “their” (professional) frame to the news for the benefit of their nations (Stevenson & Cole, 1984; Wu, 2000). For instance, with the national frame, the U.S. media attributed responsibility for the 2013 Asiana Airlines crash to the pilots and problematic management of the flight. South Korean and Chinese media were less negative toward the corporation than were U.S. news media (Yan & Kim, 2015). In another airplane crisis, Entman (1991) found vastly different media frames based on national interest in covering international airline tragedies. The U.S. downing of an Iranian plane was framed as a technical accident, while the Soviet downing of a South Korean airline plane was depicted as a moral outrage.

Sentiment Research on Social Media

A crisis issue is shared or tweeted on social media through information interactions. Such user-driven news creation/sharing activities constitute (a) social media agenda setting at the first level (i.e., the news media set an agenda on social media) and at the second level (i.e., attributes of the issue become salient or insignificant on social media), (b) user comments and decisions on the issue (Schultz, Utz, & Göritz, 2011). In this process of information interaction, users gain the power to collaboratively build crisis frames on social media (van der Meer & Verhoeven, 2013), and the media tone set on social media news posts about crisis issues might affect the public's sentiment toward the issues (J. Kim et al., 2016).

Sentiment analysis has been used widely in social media research because it can measure feelings toward communication in an interface. Sentiment on social media is defined as the attitudinal valence of users' mentions (Homburg, Ehm, & Artz, 2015). In other words, social media posts about a crisis in terms of sentiment can be viewed as negative, positive, or neutral (Choi & Lin, 2009). Users express negative emotions with anger or fear. The neutral response can be fact sharing. Positive emotions can include relief and sympathy. In dealing with crisis issues, people tend to seek more social cues to check the climate of majority opinions on issues because they want to be harmonious with the socially desirable and normative expectations of others (J. Kim et al., 2016). Past research shows that people are likely to pay attention to crisis communication via social media more than they do via traditional media because social media provide not only real-time information but also social cues, such as user comments (Brummette & Fussell, 2015; Utz, Schultz, & Glocka, 2013). Hence the sentiment analysis of crisis communication on social media could provide a social cue for gauging public attitudes on the issue (J. Kim et al., 2016).

Drawn from the review of framing in corporate crises and social media, this study posits that social media posts about the Samsung Galaxy Note 7 explosion consist of crisis frames and sentiment. Research questions reflecting the inquiries are as follows:

RQ1: How are generic frames (RQ1A), issue-specific frames (RQ1B), and cross-national frames (RQ1C) about the Samsung crisis used in social media posts?

RQ2: How is sentiment about the Samsung crisis posts used on social media?

RQ3: How do generic frames (RQ3A), issue-specific frames (RQ3B), and cross-national frames (RQ3C) for the Samsung crisis relate to sentiment?

Method

Sampling Procedure

This study used the search keyword “Samsung Galaxy Note 7” for the United States, Australia, and South Korea on Twitter. From the three nations, the search between August 1, 2016, and January 31, 2017, yielded 549,424 tweets from the United States, 24,628 tweets from Australia, and 5,036 tweets from South Korea, totaling 579,088 tweets. We used Synthesio as the data collection platform.

The coding period was set for two reasons. First, the Galaxy Note 7 model was released to the public on August 2, 2016. The first explosion was reported on August 19, 2016, in South Korea. Second, after a series of explosions, recalls, bans on carrying the Galaxy Note 7 on flights, and suspended production of the phone, Samsung officially announced the cause of the explosion on January 22, 2017. This study analyzed the tweets during the entire timeline of the explosion.

Twitter is used as a social media platform in analysis for several reasons. Twitter provides a ready source of data for researchers interested in public opinion. Twitter, with its 140-character posts,¹ consists of news, tables, statistics, and charts (Driscoll & Walker, 2014). For both professional and citizen journalists, Twitter is a supportive resource for reporting, delivering, and sharing information. Twitter is used as an information source for crises more than other social media platforms because it is fast and up to date. On Twitter, users post “trending topics” with hashtags and links. For this reason, researchers and journalists rely on Twitter for interpreting and giving context to news events (Valenzuela, Puente, & Flores, 2017). In addition to the general merits

of Twitter mentioned earlier, another reason for using Twitter is that it enables an equal comparison of the three nations. In this sense, Twitter is a more appropriate content source for the analysis of the three nations than other popular platforms, such as Naver (the largest web portal in South Korea), Facebook, and YouTube.

Three individuals participated in the data coding procedures and took charge of each nation (United States, Australia, and South Korea). Using a systematic data collection approach, the coders chose the first tweet of each day in each month. The selection yielded 184 tweets (30 for September and November; 31 for August, October, December, and January). Then, by selecting the three months with the most tweets, the remaining 16 posts were chosen ($N = 200$). They were six from the top 2 months ($n = 12$) and four from the third month ($n = 4$). Following the coding rules, a total of 600 tweets (200 from each nation) were drawn for analysis. While most Twitter studies use large samples, several framing studies have analyzed a sample size similar to the current study's. Framing studies on Twitter use relatively small samples out of many posts because aspects and valence are represented better by manual coding than with big data (e.g., García-Perdomo, 2017; Manor & Crilley, 2018; Pond & Lewis, 2019).

Coding Instrument

The unit of analysis is a Twitter post. The first coding scheme consisted of generic and issue-specific frames (An & Gower, 2009; Flick, 1998). Five generic frames were applied to the Samsung Galaxy Note 7 explosion case: conflict, economic consequences, human impact, morality, and attribution (presence = 1, absence = 0; Table 1). Since the Samsung case is concerned with a product, framing items from previous research about news media coverage of products were used (Hong, 2013; Valentini & Romenti, 2011). The adjusted items in the Samsung Note 7 explosion context are product quality, customer concern, corporate breakdown, recall, side effect, evidence, employee, lawsuit, business expert, investigation, prevention, government, cause, solution, safety, and design (presence = 1, absence = 0; Table 1). There were no additional frame items to create in the coding process, which met the conceptual saturation of frames.

TABLE 1 Measured Frame Categories and Definitions for Samsung Galaxy Note 7 Explosion

Frame type	Issue ^a	Operational definition: Social media posts that frame . . .
Generic	Conflict (.61, 1.0, 1.0)	Conflicting issues between individuals or groups (e.g., conflicts between Samsung and Apple, Galaxy Note 7 advocates and critics)
	Economic consequence (1.0, 1.0, .62)	Economic impacts of the explosion; overall impacts of Galaxy Note 7 on the market
	Human impact (1.0, 1.0, 1.0)	Personal or emotional episodes regarding Galaxy Note 7 explosion
	Morality (.86, 1.0, .74)	Samsung's ethical action taken for explosion
	Attribution (.69, .64, .69)	Who is responsible for the explosion, Samsung or consumers?
	Product quality (.70, 1.0, .77)	Quality of Galaxy Note 7 regarding the explosion
	Customer concern (.62, .77, 1.0)	Expression of concerns about ownership of Galaxy Note 7
	Corporate breakdown (.67, 1.0, .74)	Samsung's crisis
	Recall (.77, .69, .78)	Recall of Galaxy Note 7
	Side effects (.77, .69, .86)	Injury or negative brand image due to explosion
Specific	Evidence (1.0, 1.0, .83)	Evidence of explosion
	Employee (1.0, 1.0, 1.0)	Samsung employees mentioning the explosion
	Lawsuit (1.0, 1.0, 1.0)	Explosion-related lawsuit
	Business expert (1.0, 1.0, 1.0)	Interviews with experts in the mobile phone industry
	Investigation (1.0, 1.0, 1.0)	Investigations of explosion
	Prevention (.77, 1.0, 1.0)	How to prevent explosion
	Government (1.0, 1.0, 1.0)	Government's policy decision on Galaxy Note 7
	Cause (1.0, 1.0, .77)	Causes of explosion
	Solution (.69, .64, .69)	Solutions offered for explosion victims
	Safety (1.0, 1.0, 1.0)	Banning Galaxy Note 7 for airplane boarding
Cross-national	Fire (.61, 1.0, .69)	Fire caught on Galaxy Note 7
	Design (1.0, 1.0, 1.0)	Mentions of design regarding Galaxy Note 7 explosion
	National	On the side of the nation
	Professional (.76, 1.0, .65)	Objective report
Sentiment	Valence (.66, .73, .68)	Positive, neutral, or negative toward Samsung and the explosion incidents

^aValues in parentheses indicate Cohen's kappas for each country (United States, Australia, Korea, respectively).

The coders also judged whether the posts contained aspects of the national frame (on the side of the nation; coded as 2), the professional frame (objective report; coded as 1), or not identified (coded as 0; Nossek, 2004; Table 1). Regarding sentiment, the coding categories were positive (2), neutral (1), and negative (0). When a post contained a relieving, sympathetic, or favorable comment, it was coded as positive (e.g., “Samsung Galaxy Note 7’s iris scanner might be the coolest smartphone feature ever”). Posts containing fact sharing were coded as neutral (e.g., “Here are some pics of Samsung Galaxy Note 7”). When a user expressed a negative emotion with anger or fear in the post, it was coded as negative (e.g., “Samsung Galaxy Note 7 disappoints; iPhone 7 wins before launch?”). The validity of the coding was cross-checked in intercoder reliability tests.

Intercoder Reliability

Three coders participated in intercoder reliability tests. The coder of the U.S. sample drew 10% of the Australian data. The coder of the Australian sample drew 10% of the South Korean data. The coder of the South Korean sample drew 10% of the U.S. data. All three coders conducted Cohen’s kappa for intercoder agreement of categorical data. Therefore the three-nation data were cross-checked to ensure that coding reached a mutual consensus. A few variable discrepancies were present on the first attempt. After discussion, the reliability tests yielded acceptable kappas (see Table 1 for individual kappa values). Overall, the average of the three-nation reliability tests was acceptable, with a Cohen’s kappa value of .83 (Landis & Koch, 1977).

Findings

Frequency analyses and Cramer’s *V* correlations for categorical data were conducted for the posed research questions. RQ1A asked about the distribution of generic frames in posts about the Samsung crisis (Table 2). Table 2 demonstrates that tweets about the crisis most frequently included attribution ($n = 131$), followed by morality ($n = 106$), conflict ($n = 61$), and economic consequence ($n = 60$). Generic frames were posted in October 2016 ($n = 95$) the most, followed by September ($n = 85$) and November ($n = 78$).

TABLE 2 *Generic Frames by Month*

Frame	Month, no. (%)					
	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.
Conflict	11 (18.0)	15 (24.6)	13 (21.3)	8 (13.1)	8 (13.1)	6 (9.8)
Economic consequence	5 (8.3)	11 (18.3)	21 (35.0)	12 (20.0)	7 (11.7)	4 (6.7)
Human impact	2 (15.4)	4 (30.8)	4 (30.8)	1 (7.7)	1 (7.7)	1 (7.7)
Morality	4 (3.8)	21 (19.8)	27 (25.5)	26 (24.5)	12 (11.3)	16 (15.1)
Attribution	4 (3.1)	34 (26.0)	33 (25.2)	31 (23.7)	13 (9.9)	16 (12.2)
Total	26	85	95	78	41	53
						371

Note. The total numbers of each row and column do not match 600 because the frequencies display presence only. The frequencies of presence were summed up in total. The frequencies of absence were not included in the table, for readability.

* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 3 Issue-Specific Frames by Month

Frame	Month, no. (%)					
	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.
Product quality	47 (30.5)	27 (17.5)	27 (17.5)	17 (11.0)	14 (9.1)	22 (14.3)
Customer concern	9 (9.8)	28 (30.4)	28 (30.4)	13 (14.1)	10 (10.9)	4 (4.3)
Corporate breakdown	12 (3.0)	114 (28.1)	103 (25.4)	73 (18.0)	52 (12.8)	52 (12.8)
Recall	0 (0.0)	44 (37.6)	25 (21.4)	18 (15.4)	10 (8.5)	20 (17.1)
Side effects	1 (1.0)	32 (31.1)	36 (35.0)	12 (11.7)	17 (16.5)	5 (4.9)
Evidence	7 (9.9)	24 (33.8)	23 (32.4)	8 (11.3)	7 (9.9)	2 (2.8)
Employee	0 (0.0)	3 (17.6)	3 (17.6)	6 (35.3)	1 (5.9)	4 (23.5)
Lawsuit	0 (0.0)	1 (6.7)	11 (73.3)	2 (13.3)	1 (6.7)	0 (0.0)
Business expert	2 (14.3)	3 (21.4)	3 (21.4)	3 (21.4)	0 (0.0)	3 (21.4)
Investigation	2 (4.3)	10 (21.3)	8 (17.0)	8 (17.0)	6 (12.8)	13 (27.7)
Prevention	0 (0.0)	19 (34.5)	5 (9.1)	12 (21.8)	7 (12.7)	12 (19.4)
Government	0 (0.0)	13 (56.5)	7 (30.4)	1 (4.3)	0 (0.0)	2 (8.7)
Cause	3 (4.4)	18 (26.5)	13 (19.1)	5 (7.4)	17 (25.0)	12 (17.6)
Solution	2 (2.3)	27 (31.4)	12 (14.0)	20 (23.3)	14 (16.3)	11 (12.8)
Safety	0 (0.0)	21 (30.4)	17 (24.6)	12 (17.4)	12 (17.4)	7 (10.1)
Fire	8 (5.9)	37 (27.2)	33 (24.3)	14 (10.3)	23 (16.9)	21 (15.4)
Design	16 (41.0)	3 (7.7)	1 (2.6)	4 (10.3)	12 (30.8)	3 (7.7)
Total	109	424	355	228	203	193
						1,512

Note. The total numbers of each row and column do not match 600 because the frequencies display presence only. The frequencies of presence were summed up in total. The frequencies of absence were not included in the table, for readability.

* $p < .05$. ** $p < .01$. *** $p < .001$.

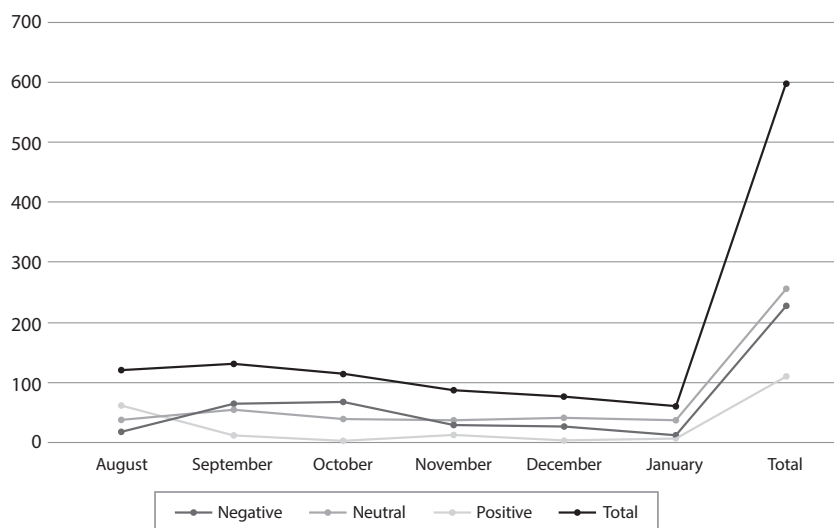


FIGURE 1 Distribution of sentiment by month. The sentiment by month is significantly different, $\chi^2(10, N = 600) = 144.18, p < .001$.

RQ1B questioned how issue-specific frames were posted on Twitter during the incident period (August 2016–January 2017; Table 3). The result showed that tweets were highly focused on corporate breakdown (Samsung’s crisis due to explosions; $n = 406$). The product quality issue was the second most tweeted topic during the incident period ($n = 154$), followed by fire ($n = 136$), recall ($n = 117$), and side effects ($n = 103$). The least tweeted issue was business expert sources ($n = 14$).

RQ1C asked about the distribution of cross-national frames (national or professional). Analysis revealed that there were more posts about the professional frame ($n = 104$) than the national frame ($n = 4$), though frame frequency by month was not statistically significant, $\chi^2(10, N = 600) = 14.91, ns$. RQ2 asked about sentiment in the posts. Analysis discovered that the least frequently observed sentiment was positive posts ($n = 112$; Figure 1). There were more posts with neutral sentiment ($n = 258$) than negative ($n = 230$) or positive sentiment ($n = 112$).

When comparing the relationship between generic frames and sentiment, as asked in RQ3A, morality and sentiment were significantly correlated with each other, $V = .27, p < .001$, indicating that Twitter users viewed posts framing the incident in terms of morality more negatively

TABLE 4 *Cramer's V Correlations Between Generic Frames and Sentiment*

Frame	Sentiment, no. (%)			Total	V
	Negative	Neutral	Positive		
Conflict	26 (42.6)	23 (37.7)	12 (19.7)	61	0.04
Economic consequence	26 (43.3)	22 (36.7)	12 (20.0)	60	0.04
Human impact	6 (46.2)	3 (23.1)	4 (30.8)	13	0.06
Morality	70 (66.0)	28 (26.4)	8 (7.5)	106	0.27***
Attribution	80 (61.1)	43 (32.8)	8 (7.1)	131	0.26***
Total	208	119	44	371	

Note. $N = 371$. The total numbers of each row and column do not match 600 because the frequencies display presence only. The frequencies of presence were summed up in total. The frequencies of absence were not included in the table, for readability.

* $p < .05$. ** $p < .01$. *** $p < .001$.

than positively. The same finding was also observed between attribution and sentiment, $V = .26$, $p < .001$ (Table 4).

RQ3B looked at the relationship between issue-specific frames and sentiment. Most issue-specific frames were correlated with negative sentiment (Table 5). Corporate breakdown was highly associated with negative sentiment, $V = .45$, $p < .001$. Customer concerns, side effects, fires on the phone, safety, and explosion evidence were significantly associated with negative sentiment. However, the significant association between product quality and sentiment demonstrated that several supporters of Samsung posted the quality of Galaxy Note 7 more positively than neutrally, $V = .21$, $p < .001$. Regarding design, there was more positive sentiment than negative, $V = .19$, $p < .001$. RQ3C questioned how cross-national frames were related to sentiment. As shown in Table 6, there was no significant relationship between them. No discrepancies were found between negative and positive sentiment by cross-national frames.

TABLE 5 Cramer's V Correlations Between Issue-Specific Frames and Sentiment

Frame	Sentiment, no. (%)			Total	V
	Negative	Neutral	Positive		
Product quality	68 (44.2)	42 (27.3)	44 (28.6)	154	0.21***
Customer concern	80 (87.0)	12 (13.0)	0 (0.0)	92	0.43***
Corporate breakdown	199 (49.0)	177 (43.6)	30 (7.4)	406	0.45***
Recall	52 (44.4)	55 (47.0)	10 (8.5)	117	0.13**
Side effects	86 (83.5)	12 (11.7)	5 (4.9)	103	0.42***
Evidence	51 (71.8)	17 (23.9)	3 (4.2)	71	0.26***
Employee	7 (41.2)	3 (17.6)	7 (41.2)	17	0.11*
Lawsuit	10 (66.7)	4 (26.7)	1 (6.7)	15	0.09
Business expert	5 (35.7)	5 (35.7)	4 (28.6)	14	0.04
Investigation	18 (38.3)	26 (55.3)	3 (6.4)	47	0.09
Prevention	27 (49.1)	24 (43.6)	4 (7.3)	55	0.10*
Government	10 (43.5)	13 (56.5)	0 (0.0)	23	0.09
Cause	31 (45.6)	33 (48.5)	4 (5.9)	68	0.12*
Solution	36 (41.9)	36 (41.9)	14 (16.4)	86	0.03
Safety	43 (62.3)	26 (37.7)	0 (0.0)	69	0.21***
Fire	77 (56.6)	56 (46.2)	3 (2.2)	136	0.29***
Design	4 (10.3)	18 (46.2)	17 (43.6)	39	0.19***
Total	804	559	149	1,512	

Note: N = 1,512. The total numbers of each row and column do not match 600 because the frequencies display presence only. The frequencies of presence were summed up in total. The frequencies of absence were not included in the table, for readability.

* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 6 *Cramer's V Correlations Between Cross-National Frames and Sentiment*

Frame	Sentiment			Total	V (N)
	Negative	Neutral	Positive		
Not identified	195 (39.6)	210 (42.7)	87 (17.7)	492	
Professional	33 (31.7)	46 (44.2)	25 (24.0)	104	
National	2 (50.0)	2 (50.0)	0 (0.0)	4	
Total	230	258	112	600	0.06 (600) ^a

Note. Values in parentheses indicate percentages for each cross-national frame.

^aThe total number matches 600 because the frame items include all responses (professional, national, and not identified).

Discussion

This analysis of Samsung crisis posts demonstrates that social media are a sphere of disseminating news, opinions, and sentiment. Posts on social media may affect both the corporation and the public in terms of reputation management, PR strategies, and behavioral intentions. This study investigated framing types and expressed sentiment in Twitter posts about the Samsung crisis and associated sentiment with particular framing types. These research questions are of importance for both academics and practitioners for several reasons. Nowadays, global organizations are crisis prone due to the snowballing and unlimited nature of global media platforms such as Twitter. Also, as digital media have evolved, so has the audience. As opposed to customers at brick-and-mortar stores—the vast majority of which are valued customers—users of social media tend to respond quickly and often without mercy when a corporation faces a crisis, thereby exacerbating the issue via sharing behaviors. This study paid special attention to Twitter as one of the most influential social media platforms, especially when conveying breaking stories to the masses (Murthy, 2011).

The findings of this study demonstrate where sentiment lies during or after a crisis. The first set of research questions (RQ1) concerned how an international corporate crisis was framed on social media. In RQ1A on generic frames, findings demonstrated that attribution and morality frames were more frequently posted than conflict, economic consequence, and human impact frames. For instance, a South Korean

user mentioned Samsung's responsibility for the explosion on Twitter, writing, "OMG, should Samsung pay for the damage to the vehicle due to the phone explosion?" However, there were relatively few ethical actions or responsibility posts from Samsung. The most frequently used frame (attribution) this study found is congruent with previous research on news framing in traditional media (Semetko & Valkenburg, 2000), indicating a consistency of framing regardless of the news dissemination platform.

As the findings of RQ1B illustrate, posts expressing negative sentiment (e.g., corporate breakdown, product quality, fire, and recall) were more frequently tweeted than posts expressing positive sentiment (e.g., solution, prevention, and safety). The pattern of issue coverage between legacy news media (Hong, 2013) and Twitter was similar in issue-specific framing. Findings suggest that Twitter users perform *secondary crisis communication* (SCC), which is defined as conveying news and others' posts about the crisis (Zheng, Liu, & Davison, 2018). Social media users' cognitive reputation in Samsung resulted in SCC, as they felt morally violated through the explosion incident. During and after the crisis, many posts highlighted the corporate breakdown of Samsung. For instance, a U.S. user's retweet reads, "There's a worldwide recall on the new Samsung Note 7's. It's been reported they're catching fire. Return it ASAP."

The analysis for RQ1C found that there were more professional frames than national frames (see the appendix for sample tweets of cross-national frames). This result shows a slightly different pattern than the past research on crisis news coverage, which was national frame oriented (Mao, 2014; Shoemaker & Reese, 1996). We found more cosmopolitanism (no significant difference among the nations) than in the national frame. It should be noted that traditionally and conventionally framing theory itself has been utilized to identify and analyze "how journalists depict a crisis." Yet this study applies framing theory differently than the previous approach, as we look at how global online users respond to a crisis rather than investigate press coverage. To be specific, in previous research (Mao, 2014), the Chinese press constructed two crises (the Asian financial crisis and the European debt crisis) with many levels of the national frame. The difference in findings between the current and previous studies might be due to the different natures of newspapers and Twitter.

While we found the value of framing as theoretical and methodological tool for examining online audiences' collective selection of information and sharing behaviors, we also found that cosmopolitanism on the global media might prevail over the national frame. Twitter is a global medium, unlike traditional media platforms, such as local newspapers or national broadcasting, so the national frame might have disappeared or been watered down in comparison to a traditional form of media coverage. In an online sphere, global audiences and issue-based communities are formed and activated. Therefore the result might have been different than previous findings due to the different nature and scope of digital media platforms compared to traditional ones.

The second aim of the current study was to explore the distribution of sentiment in Twitter posts on the Samsung crisis (RQ2). Given the finding of more negative sentiment than positive sentiment, Twitter users may hold the power to collaborate in crisis frame building (van der Meer & Verhoeven, 2013). Twitter users' power is an interactive process in which some posts on a topic can capture other users' attention. Once the posts capture attention, they are retweeted. For example, a U.S. user retweeted the hyperlinked news with negative sentiment: "Samsung Galaxy Note 7 Disappoints; iPhone 7 Wins Before Launch? <http://dlvr.it/M7mm9x> #newiphone."

A significant relationship was found between social media post frames and audience sentiment (RQ3). When correlations between generic frames and sentiment were tested in Cramer's *V* analyses, attribution and morality were correlated with negative sentiment. Therefore this study suggests that prompt and constant responses to a crisis posted on the corporation's social media pages can be used for shares and retweets. In this way, morality and attribution frames may be framed positively.

This interpretation of generic frames and sentiment applies to the comparison between issue-specific frames and sentiment. Corporate breakdown, customer concerns, and side effects were the top three issues highly associated with negative sentiment. This comparison suggests that companies should manage social media posts to respond to a crisis strategically. Active posts, such as apologies, ideas to overcome corporate breakdowns, management of side effects, and the provision of solutions, can be some response options.

Overall, most of the negative posts are centered around the “issue-specific frame” with regard to product failure, not the national frame of the issue. Given these results, crisis communicators should note that the rebuild strategy is a recommendable action to turn around negative sentiment with crisis relief (Coombs, 2007). Also, this study’s results shed light on the importance and role of Twitter in cross-national crisis situations, as negative sentiment mushroomed with information sharing among global user communities. Samsung and influencers supporting the corporation would have used Twitter to rebuild Samsung’s reputation proactively. However, not enough suitable and effective responses and/or thoughtful communication messages from Samsung were found in response to product failure and corporate breakdown. Thus Samsung seemed to fail to win immediate attention from customers in terms of handling the issue. This might be the case for other global IT corporations. IT corporations might not have feasible communication solutions or communication strategies against any potential and/or impending crises.

Audiences used Twitter for the news and information dissemination of the explosion in the form of retweets and comments. The current study found that users externalized breaking news on the explosion by hyperlinking. Hyperlinking invoked public discussion on the incident. Users participated in retweeting and commenting behaviors with personal sentiment. Past research demonstrated that social media users interpret news frames and create their own discussion forums on Twitter (Valenzuela, Piña, & Ramírez, 2017; Wasike, 2013). Therefore Twitter users create a new sphere of discussion by sharing frames (generic, issue specific) with other users actively.

Theoretical and Practical Implications

This study analyzed social media posts about a corporate crisis regarding generic, issue-specific, cross-national frames and regarding sentiment. This approach opens the possibility of combining framing and other crisis communication theories. The framing perspective can be incorporated into situational crisis communication theory in the social media context. The issues posted on social media can be elaborated on generic and issue-specific frames. Different crisis types (victim, accidental, and intentional) can be observed in those issues

on social media. Eventually, some posts can predict audiences' positive or negative attitudes toward the corporation (Kim & Cameron, 2011).

The dominant negative posts on social media suggest that the platform can be an influential channel for the global audience. In response to the crisis, findings reveal that social media users are highly concerned about corporate morality and attribution. Therefore corporations can pay attention to ethical and responsibility aspects in their social media posts. Given the positive relationship between issue-specific frames and negative sentiment, corporations may continually monitor social media posts and post emotional stories in an effort to elicit positive audience perceptions (Spence, Sellnow-Richmond, Sellnow, & Lachlan, 2016).

Limitations and Suggestions for Future Research

This study contains several methodological limitations. The sample ($N = 600$) out of more than 100,000 Twitter posts does not fully reflect the Samsung Note 7 explosion. Although framing research uses a relatively small sample for manual coding, sample representativeness is a study limitation. Future research on big data can represent a valid state of the explosion incident. Intermedia agenda setting research can warrant the flow of social media posts on this topic. An expanded analysis of social media and traditional news media can show the power of media channels covering the issue and public perceptions. Therefore surveying the public about attitudes toward a corporation can provide further answers. The survey questions for the public could be drawn from a content analysis of social media posts. Then the public could indicate how often they view the messages and evaluate the experience. Future research can compare social media posts with public attitudes.

In conclusion, the results of the present study imply that Twitter was used more for negative posts than for positive ones on the Samsung Galaxy Note 7 explosion case. Users paid attention to corporate morality, attribution, corporate breakdown, product quality, and the recall. Even though the national frame was not a significant frame, negative sentiment was prominent. The findings suggest that analyses of Twitter can provide a content structure of the Samsung Galaxy Note 7 explosion.

Appendix: Sample Tweets of Cross-National Frames

Professional frame: RT @verge: Breaking: Samsung will reportedly issue worldwide recall of Galaxy Note 7 http://www.theverge.com/2016/9/1/12759912/samsung-galaxy-note-7-recall?utm_campaign=theverge&utm_content=chorus&utm_medium=social&utm_source=twitter

National frame: RT @themoneygame: Korea's won tumbles as BOK warns of possible Samsung Galaxy Note 7 fallout <https://t.co/aEv7pC6amc>

Not identified: RT @techtimestv: Here are some pics of Samsung Galaxy Note 7 @techtimestv

Acknowledgement

The authors would like to express gratitude to Synthesio for its provision of the Twitter data used for analysis in this study.

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Note

1. Twitter started a 280-character tweet limit on November 7, 2017.

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What Do Reviewers Want? Reflections on Editing the Journal for the Past Year

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ABSTRACT

The peer review process can be challenging. In this essay, the journal's editor and editorial assistant present a summary of reviewers' comments to authors from the past year. In presenting themes across 79 reviews, this essay arms authors with knowledge about reviewers' expectations for manuscripts submitted to the journal. A secondary aim of this essay is to encourage reviewers to continue providing supportive and helpful feedback. As the journal heads into its third year of publishing, we are well on our way to creating the first home for high-quality risk and crisis communication research from around the globe.

KEYWORDS: Risk; crisis; communication; reviewers; peer review

A common joke among academics is that Reviewer 2 embodies everything wrong with the peer review process, including providing unhelpful, unclear, obnoxious, and destructive feedback (Brown, 2015). At the time of writing this essay, the "Reviewer 2 Must Be Stopped!" Facebook group had nearly 19,000 members, and similar communities existed on Twitter. In an article in the *Chronicle of Higher Education*, Duncan (2018) categorized reviewers into three categories: Type 1 reviewers read manuscripts carefully and offer feedback that is helpful and specific; Type 2 reviewers provide general feedback that is difficult to address, in part because these reviewers do not carefully read manuscripts; Type 3 reviewers exert their power rather than providing constructive feedback. We are happy to report that the vast majority of reviewers for the *Journal of International Crisis and Risk Communication Research* are Type 1 reviewers.

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In this essay, we reflect on the comments reviewers have provided to authors over the past year. In doing so, we aim to arm authors with the knowledge required to submit strong manuscripts. A secondary aim is to encourage reviewers to continue providing supportive and helpful feedback. Our goal is to detect patterns in reviewers' comments as well as important outliers. To accomplish this goal, we used the qualitative analysis program NVivo to jointly code the anonymous reviews.¹ In this essay, we present our key findings from multiple rounds of coding. All reviewers' comments from the past year were downloaded from the online submission system, any identifying information was removed, and comments were uploaded into the NVivo qualitative analysis software. We split the comments into two sections and engaged in first-round coding, identifying whether comments referred to the following sections: literature review, methods, results, discussion, and general writing issues. We then engaged in axial coding, further subcategorizing the codes in each section to better describe the properties of each initial section (Saldaña, 2015). We organize this essay by summarizing reviewers' comments on the common sections of manuscripts and crosscutting feedback.

Summary of Reviewer Comments

Literature Review

Reviewers frequently note that authors have insufficient and/or underdeveloped literature to ground their research. To improve literature reviews, recommendations include writing a comprehensive review, not just a review of sampled studies; including key studies, even if they are older "classics"; incorporating the most recent research; and clearly connecting each section of the literature review. Additionally, literature reviews should accurately summarize prior research and justify why some concepts and theories are included and others are not. For empirical research, reviewers note that literature reviews must justify the need for proposed research questions and hypotheses. For all manuscripts, reviewers ask for streamlined literature reviews to allow space for the other important parts of manuscripts. In short, reviewers are deep experts in crisis and risk communication and expect manuscripts to

reflect topic-matter expertise. When literature reviews were thorough, well argued, and logically organized, reviewers complimented authors for these noted strengths.

In terms of theories covered in literature reviews, some reviewers critique authors for selecting outdated or mismatched theories. Reviewers often comment on theory, including asking for the addition of well-developed theoretical frameworks when manuscripts do not include theory. When proposing new models or theories, reviewers request adequate justification for why new models or theories are needed.

Methods

The journal is open to any method, and thus reviewer comments were fairly diverse, because they were closely connected to the specific methods used. These methods include case studies, interviews, big data analysis, content analysis, systematic literature reviews, surveys, and experiments. Despite the variety of methods, generally, comments on methods can be categorized into three major concerns: sampling and study design, operationalization of variables, and analysis. Across all of these areas, reviewers show a clear preference for detailed methods sections.

Sampling and study design. Across methods, reviewers ask authors to justify their samples. For example, in case studies, authors should explain why they selected certain cases and not others. Reviewers sometimes criticize authors for selecting cases that are out of date. MechanicalTurk (Mturk) is a popular data collection site, but information about recruiting via Mturk, and indeed recruiting for all samples, is needed. For example, reviewers asked, What was the call for participants? What incentives were participants offered? How was data cleaning undertaken? and What was the completion rate? Furthermore, reviewers request that authors explicitly state the limitations of their sampling strategies. In terms of study design, reviewers request clear, step-by-step explanations for all research designs. Reviewers further ask for appendices that include study manipulations in the case of experiments, interview protocols in the case of qualitative research, search terms and databases employed in the case of systematic reviews, and

information about how social media posts were collected and in what time frame in the case of social media analysis.

Operationalization. Reviewers sometimes express concern with the operationalization of variables, especially when variables central to analysis are measured with only one item or when multidimensional concepts are measured with single items unlikely to capture the concept's different dimensions. Alternatively, some reviewers express concern about low scale reliability. There was also concern that operationalizations of certain concepts did not match their conceptualizations and, in fact, were not measuring what they were intended to measure (i.e., they lacked validity). In content analyses in particular, reviewers call for clear explanation of how codes were applied, including providing exemplars for each code to aid understanding. Reviewers further call for explanation of how codebooks were developed. For experimental and survey research, reviewers ask authors to clearly report at least one exemplar question used to measure each central variable. Reviewers also need specific information about what covariates were measured. A final area of concern for some reviewers is when concepts central to certain theories were not captured in measurements or analysis.

Analysis. Reviewer comments regarding analytic methods vary widely, depending on the method used. Generally, reviewers ask authors to explain why the chosen analytic method was appropriate given the available data and hypotheses/research questions. They also ask for clear explanations for methods employed. A common request for quantitative research is for authors to push their analyses further by using more sophisticated analytic techniques. Some reviewers remind authors of the importance of only reporting analyses that correspond to written hypotheses or research questions.

Results

In general, there were fewer concerns specific to research results compared to other sections of submitted manuscripts. For quantitative studies, reviewers sometimes note a lack of precision and detail in reporting results. For example, reviewers ask authors to clarify whether they were reporting standardized or unstandardized coefficients. For qualitative research, reviewers often call for more rich details and additional ex-

amples to demonstrate themes. Overall, reviewers find the inclusion of subheadings in results sections helpful. Subheadings may correspond with research questions or hypotheses to signal to the reader alignment between methods and results. Tables and figures are also useful and concise ways to represent results. Finally, for all research, reviewers recommend using precise language to convey findings accurately.

Discussion and Conclusions

For all methods, reviewers call on authors to move beyond a review of their findings in the discussion section. Instead, authors should engage past literature and provide practical and theoretical implications drawn from their findings. Reviewers recommend tying conclusions back to the extant research—including relevant research that may not have been included in the literature review. When authors are interpreting findings, reviewers ask authors to articulate the new contributions that their research makes. Practical contributions should be specific and actionable. Contributions to theory also should be specific. Reviewers note that misalignment between findings and implications drawn is a common pitfall of discussion sections. Reviewers also frequently recommend using tentative language, rather than definitive language, in attempts to generalize findings to theory and practice.

Crosscutting Issues

Reviewers provided some comments on issues that pertain to multiple parts of manuscripts, as summarized in the following paragraphs.

“So what” issues. One of the most challenging aspects of research can be justifying the “so what” of a project. Unsurprisingly, reviewers often comment on the “so what” issue. First, the introduction and literature review must clearly and persuasively justify the “so what.” Part of this justification includes a deep understanding of the literature. In terms of how to specifically justify the “so what” of a project, reviewers recommend considering how the research contributes to society, theory building, methodological advancement, and/or risk and crisis communication practice. Reviewers urge authors to make explicit reference to how their research extends, clarifies, or corrects past research in the discussion and conclusion section of manuscripts. In short, to address

the “so what” issue, authors can answer questions such as, Why is this study important? How can it improve practice? How can it develop theory? and What gaps does it fill?

General writing issues. Reviewers frequently express concerns about writing. These concerns can be categorized into four general areas: grammar mistakes or spelling typos, lack of attention to American Psychological Association (APA) style, lack of flow, and verbosity. Grammar and/or spelling errors distract reviewers and, in some cases, impede understanding of manuscripts. Reviewers often suggest that authors conduct thorough proofreading of their work and pay careful attention to APA style. While recognizing the international scope of the journal and the importance of diverse voices in crisis and risk communication scholarship, many reviewers recommend the use of a copy editor, especially for authors who do not appear to be native English speakers. Furthermore, reviewers call for consistency in terms throughout manuscripts and ask authors to avoid passive voice, ensure subject–verb agreement, and employ appropriate word choice. The editorial team is committed to continuing to work with authors who are not native English speakers; yet, it is important to realize that reviewers have persistent concerns with writing for many manuscripts submitted to the journal.

Other writing issues are stylistic in nature. Reviewers note that manuscripts are often too long, sometimes as a result of unfocused literature reviews. Repetition in the author’s own writing also unnecessarily increases length, and reviewers ask authors to make their manuscripts more succinct. Tips for improving the flow and length of a manuscript include avoiding redundancy in the introduction and literature review, adding subheaders, avoiding long paragraphs, and organizing the manuscript according to APA guidelines. Thinking of an article like an hourglass is a useful visualization: Start off broad in the introduction and narrow in as the article presents hypotheses/research questions, methods, and findings. Broaden out again in the discussion and conclusion sections. In terms of flow, reviewers note two common issues with introductions: an insufficient introduction that jumps too quickly to the literature review or an introduction that does not introduce the topic at hand or explain why it is important to

study. Reviewers recommend strong thesis or purpose statements at the end of introductions to give readers a framework for the importance of the study. The target article length for the journal is 25 total pages, including references (the abstract and cover page do not count toward that limit).

Manuscript strengths. The majority of reviewers are constructive and sometimes take time to note manuscripts' strengths. Generally, reviewers praise authors for focusing on interesting topics, such as crisis events of great significance to many, topics that illustrate unique deficiencies in crisis literature, and topics that provide fresh perspectives on risk or crisis communication theory. Studies with novel data and/or approaches also receive praise. As discussed, reviewers enjoy reading manuscripts with strong introductions that persuasively articulate the "so what," employ clear and compelling writing, and have well-organized literature reviews. Finally, manuscripts with sophisticated analyses that lead to significant theoretical and/or applied advancements are highly commended.

Conclusion

When we accepted the offer to edit this journal more than a year ago, we were entering unknown territory: Would we receive sufficient quality research? Would reviewers provide consistently helpful feedback? Would the journal fulfill its mission of providing the first home for cutting-edge, open-access crisis and risk communication scholarship? As is evident in the articles published over the past 2 years, we are well on our way to fulfilling our mission, a mission that includes publishing scholarship from emerging and well-established scholars from around the globe. This essay further demonstrates that reviewers are indeed providing quality feedback. By lifting the veil of secrecy behind the peer review process, our intent in this essay is to help authors submit even higher quality scholarship to the journal. Together we can continue to build the premier peer-reviewed journal for crisis and risk communication scholarship.

Brooke Fisher Liu, PhD, concentrates her research on investigating how government messages, media, and interpersonal communication can motivate people to successfully respond to and recover from disasters. Liu is an associate professor of communication at the University of Maryland, where she leads the Risk Communication and Resilience Research Program at START, a U.S. Department of Homeland Security Center of Excellence. Liu's research has been funded by government agencies such as the Defense Advanced Research Projects Agency (DARPA), the Department of Homeland Security (DHS), the National Science Foundation (NSF), and the National Oceanic and Atmospheric Administration (NOAA).

Samantha J. Stanley, MA, is a doctoral candidate in the department of communication at the University of Maryland. Her research investigates the confluence of identity, communication, and health-relevant outcomes in contexts such as e-cigarette and cigarette use, HPV vaccination, and patient-provider relationships.

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Note

1. The University of Maryland Institutional Review Board (IRB) was consulted to determine whether this essay constituted human subjects research, thus necessitating informed consent. The IRB determined that this essay is “not research.”

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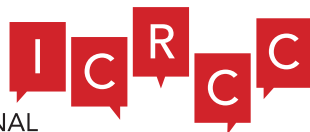


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